

TABLE 144.—SHOWING FOR EACH MONTH THE PROPORTION IN 100 DEATHS FROM SPECIFIED CAUSES TO TOTAL NUMBER OF DEATHS FROM CORRESPONDING CAUSES DURING THE CENSUS YEAR.

Causes of death.	Total.	June, 1879.	July, 1879.	August, 1879.	September, 1879.	October, 1879.	November, 1879.	December, 1879.	January, 1880.	February, 1880.	March, 1880.	April, 1880.	May, 1880.
Frozen	133						4.5	45.1	17.2	18.7	9.0	3.7	1.5
Hydrophobia	80	11.2	8.7	16.2	6.2	8.7	7.5	2.5	10.0	7.5	3.7	11.2	6.2
Lightning	300	17.3	25.0	15.0	3.3	3.3		1.6			2.6	9.0	22.0
Mumps	115	5.2	5.2	4.8	6.9	5.2	3.4	6.0	12.1	13.0	8.6	15.6	13.8
Noma	137	10.2	4.3	16.0	11.6	11.6	11.0	2.1	5.8	5.8	5.8	7.2	7.2
Typhlitis	59	5.0	13.8	15.2	3.3	6.7	11.8		11.8	3.3	6.7	6.7	15.2

SECTION IX.—MORBIDITY OR SICK RATES.

An attempt has been made in this census to obtain, upon the schedules for the living population, the number of those who were, on the 1st day of June, so sick or disabled as to be unable to pursue their ordinary occupations. This is the first experiment of this kind which has been made in this country, but similar attempts have been made in the censuses of Ireland and the Australian colonies. Owing to want of clerical force, it has not been found possible to compile the data relating to this subject for all the states and territories. A preliminary examination of the schedules seemed to indicate that the returns of sick were too imperfect and inaccurate to permit of drawing any conclusions from their compilation. A subsequent examination showed that they were really more complete than had been supposed, and the data have been compiled for portions of the country sufficient to give a fair sample for different regions.

The following table shows the result of these compilations. It will be seen from this table that, for the total population over 15 years of age, which is the only portion to which it seemed worth while to apply this inquiry, the number found sick out of every 1000 living varied from 7.7 to 22.7 for males, and from 8.1 to 17.5 for females, the mean being for males 13.41, and for females 12.15, or, for the total population, 12.75 per 1000:

TABLE 145.—SHOWING FOR CERTAIN STATE GROUPS THE TOTAL NUMBER OF SICK, AND THE PROPORTIONS OF SICK OVER 15 YEARS OF AGE AND OF CERTAIN AGE GROUPS IN 1000 OF POPULATION OF CORRESPONDING AGES.

States and State Groups.	Total number of sick.		Proportion of sick over 15 years of age in 1000 of population of same age.		PROPORTION OF SICK TO 1000 OF POPULATION OF CORRESPONDING AGES.											
					15-25.		25-35.		35-45.		45-55.		55-65.		65 and over.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Totals	135,338	122,347	13.41	12.15	6.9	6.8	8.6	9.7	12.2	11.5	16.8	14.4	25.5	20.4	44.5	35.3
Alabama:																
Group 1.....	422	300	22.4	14.1	14.1	6.0	13.1	10.0	22.6	14.0	27.9	15.1	33.8	28.1	50.2	67.1
Group 2.....	2,243	1,985	10.7	16.7	10.1	9.0	13.0	12.9	20.1	16.6	25.9	23.8	37.4	30.9	60.0	62.6
Group 3.....	4,539	4,147	16.6	14.4	8.5	7.2	10.9	11.4	21.8	14.2	21.0	19.6	27.8	27.7	58.7	58.6
California:																
Group 1.....	3,003	937	17.1	10.9	7.5	8.5	10.1	8.3	14.4	11.3	23.4	15.2	37.7	22.1	73.7	38.7
Group 2.....	4,114	2,098	16.4	11.4	8.1	6.2	9.4	8.1	15.9	11.6	23.9	15.2	41.3	28.0	64.8	49.0
Connecticut:																
Group 1.....	2,426	2,334	15.6	14.2	7.5	7.3	8.9	11.5	11.3	11.8	18.4	14.5	26.7	20.3	56.0	40.6
Group 2.....	1,471	1,597	15.1	15.3	7.6	8.9	8.6	11.3	11.3	13.9	14.8	14.7	25.4	17.7	51.5	42.7
Delaware	625	612	10.5	10.7	5.3	6.2	7.7	9.1	9.7	10.3	13.3	13.1	18.9	16.5	34.1	27.0
Georgia:																
Group 1.....	623	760	11.7	14.7	6.9	9.1	8.8	13.8	13.2	15.4	15.5	18.1	20.0	24.4	37.1	37.3
Group 2.....	1,796	2,332	13.5	17.5	6.6	9.4	9.3	15.6	13.0	19.0	20.1	23.7	28.5	28.6	48.2	48.1
Group 3.....	2,598	3,246	7.7	9.7	4.3	5.8	5.6	8.7	6.9	10.3	10.4	13.1	15.2	16.4	28.0	25.8
Illinois:																
Group 1.....	2,221	1,988	8.7	8.1	5.5	5.5	5.2	7.2	8.1	8.9	13.7	10.7	22.2	14.3	25.2	16.9
Group 2.....	2,686	2,345	12.1	11.4	6.4	6.3	8.6	11.1	13.2	13.3	17.1	14.7	22.4	18.9	35.1	26.3
Group 3.....	7,608	7,169	10.0	10.3	5.3	6.1	7.3	9.1	10.4	11.1	13.4	13.2	19.8	17.8	29.2	24.0
Maine:																
Group 1.....	3,199	2,926	19.4	16.7	8.7	8.6	10.6	13.3	13.5	14.0	19.6	17.1	30.4	22.0	61.5	51.3
Group 2.....	1,314	1,152	16.3	15.0	6.7	8.8	7.0	10.5	11.8	12.4	14.7	14.7	26.8	18.0	58.8	43.5
Maryland:																
Group 1.....	3,639	3,565	12.2	11.6	6.3	6.0	7.6	9.5	11.2	11.5	16.0	14.2	25.4	21.0	41.4	32.5
Group 2.....	528	462	10.2	8.8	5.9	4.0	6.8	7.0	8.8	8.0	9.8	11.2	18.6	16.2	35.9	25.7

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TABLE 145.—SHOWING FOR CERTAIN STATE GROUPS THE TOTAL NUMBER OF SICK, AND THE PROPORTIONS OF SICK OVER 15 YEARS OF AGE AND OF CERTAIN AGE GROUPS IN 1000 OF POPULATION OF CORRESPONDING AGES—Continued.

States and State Groups.	Total number of sick.		Proportion of sick over 15 years of age in 1000 of population of same age.		PROPORTION OF SICK TO 1000 OF POPULATION OF CORRESPONDING AGES.											
					15-25.		25-35.		35-45.		45-55.		55-65.		65 and over.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Michigan:																
Group 1.....	5,308	3,519	16.5	12.3	9.3	7.7	11.7	9.9	16.2	12.3	21.9	14.8	31.9	18.8	54.8	43.5
Group 2.....	6,211	4,654	18.0	14.8	9.3	8.6	12.2	11.9	18.9	14.1	21.4	16.7	30.9	24.8	52.7	42.0
New Hampshire:																
Group 1.....	1,547	1,672	15.8	16.4	8.3	8.8	8.0	11.7	10.3	12.0	16.0	14.5	22.9	18.8	50.3	40.5
Group 2.....	776	831	15.3	17.0	8.0	8.4	6.6	13.3	10.9	14.4	13.6	13.8	20.3	17.4	49.8	46.0
New Jersey:																
Group 1.....	4,145	3,600	12.9	10.5	6.7	6.0	8.4	8.5	11.9	9.8	16.1	13.0	24.9	16.6	42.3	28.7
Group 2.....	1,628	1,350	13.3	10.2	7.4	6.1	8.3	8.5	11.6	8.8	16.3	11.6	21.3	17.2	43.0	25.3
New York:																
Group 1.....	9,364	7,777	11.1	8.5	5.9	4.3	7.1	6.3	10.0	8.4	15.0	11.4	26.1	17.6	39.4	26.4
Group 2.....	1,091	1,147	9.3	10.0	5.9	7.0	5.9	8.8	8.1	8.7	9.5	9.5	16.5	14.2	22.8	23.2
Group 3.....	1,227	1,076	11.4	9.8	5.2	5.2	6.9	7.4	8.3	7.7	11.6	11.7	21.5	15.2	38.3	26.7
Group 4.....	3,921	3,772	13.2	12.2	6.9	7.1	8.5	10.2	10.7	10.2	15.0	14.0	23.7	20.2	36.8	30.2
Group 5.....	8,364	7,968	12.9	11.6	5.7	6.6	6.7	8.6	10.0	10.1	14.3	12.7	24.0	17.7	40.3	30.4
North Carolina:																
Group 1.....	2,014	2,487	13.5	16.5	7.4	10.4	9.0	13.0	14.1	17.2	16.6	19.3	26.6	34.1	44.9	41.8
Group 2.....	3,218	4,099	11.8	15.4	6.9	9.3	8.4	12.7	11.2	15.8	13.0	18.6	20.5	25.2	42.6	40.4
Group 3.....	1,233	1,332	16.1	16.4	7.7	7.2	12.2	13.1	13.8	19.3	19.5	22.8	35.5	31.9	55.9	45.5
Pennsylvania:																
Group 1.....	8,354	6,893	14.2	11.7	7.2	6.8	9.4	9.1	13.1	11.2	18.1	13.0	26.4	19.7	45.0	33.8
Group 2.....	13,602	12,077	13.3	11.2	6.9	6.4	8.5	8.7	11.2	10.2	17.0	13.2	26.5	20.0	46.2	32.0
Rhode Island.....	1,600	1,439	14.8	11.9	8.6	7.7	7.5	10.2	13.6	8.8	17.7	12.5	28.7	20.0	48.0	20.1
South Carolina:																
Group 1.....	1,608	1,645	10.6	15.9	8.0	7.7	10.2	10.7	16.3	12.8	19.8	18.4	30.6	30.3	59.7	71.6
Group 2.....	191	145	21.5	14.2	12.5	7.5	11.6	8.0	31.0	19.1	20.6	17.3	36.5	21.2	63.9	46.5
Group 3.....	3,774	3,669	17.7	16.8	8.6	8.6	11.7	12.1	20.8	15.4	27.8	20.1	28.8	30.8	62.3	72.8
Vermont.....	1,805	1,871	13.9	14.3	7.1	8.1	8.2	11.2	9.7	12.3	13.0	14.2	20.1	19.9	41.2	32.0
Virginia:																
Group 1.....	1,207	1,320	11.1	12.7	4.9	5.7	7.5	11.7	11.4	12.4	15.9	17.0	20.8	24.5	36.7	34.2
Group 2.....	2,391	2,689	16.8	11.5	5.9	6.6	7.4	9.4	8.2	11.2	11.9	13.5	18.9	18.7	38.0	33.6
Group 3.....	2,250	2,418	12.3	12.7	6.0	6.2	8.0	10.6	11.9	13.6	15.0	15.2	21.2	22.7	43.3	37.6
West Virginia:																
Group 1.....	1,630	1,544	14.7	14.4	7.4	7.0	10.7	11.1	14.5	16.6	19.5	19.3	27.4	23.7	47.3	42.9
Group 2.....	1,790	1,509	16.2	13.8	8.2	11.7	11.5	12.1	15.0	14.9	24.8	17.5	32.8	23.5	55.7	37.7

Classifying these statistics by grand groups as far as possible, we obtain the result shown in the following table and diagram:

TABLE 146.—SHOWING FOR CERTAIN GRAND GROUPS, OR PORTIONS THEREOF, WITH DISTINCTION OF SEX, THE POPULATION OVER 15 YEARS OF AGE, THE NUMBER OF SICK OVER 15 YEARS OF AGE, AND THE PROPORTION PER 1000 OF SICK TO POPULATION.

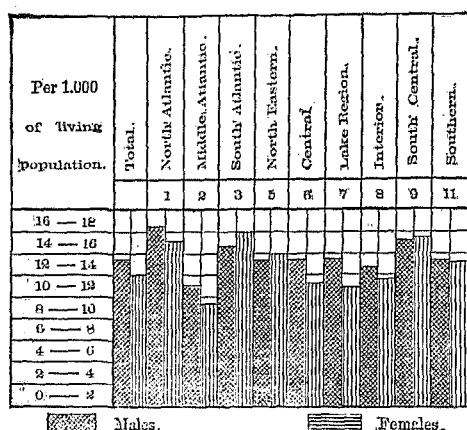
Grand Groups.	POPULATION.			SICK.			PER 1000.		
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
Total.....	13,998,301	6,874,638	7,123,663	178,246	91,866	86,380	12.73	13.28	12.19
1. North Atlantic Coast region.....	985,219	452,318	482,901	14,764	7,584	7,180	15.78	16.76	14.86
2. Middle Atlantic Coast region.....	2,761,848	1,344,025	1,417,223	29,667	15,744	13,923	10.74	11.70	9.82
3. South Atlantic Coast region.....	495,684	238,652	257,032	7,537	3,411	4,126	15.20	14.20	16.05
5. Northeastern Hills and Plateaus.....	815,282	406,925	408,357	11,337	5,603	5,734	13.90	13.76	14.04
6. Central Appalachian region.....	1,462,806	733,287	729,519	17,993	9,010	8,983	12.30	13.51	11.08
7. Region of the Great Northern Lakes.....	1,407,869	729,119	678,759	17,129	9,591	7,538	12.16	13.15	11.10
8. The Interior Plateau.....	3,693,291	1,799,367	1,893,924	45,598	23,029	22,569	12.34	12.79	11.91
9. Southern Central Appalachian region.....	1,054,922	511,329	543,593	15,947	7,650	8,297	15.11	14.96	15.26
11. Southern Interior Plateau.....	1,371,380	659,025	712,355	18,269	8,834	9,435	13.32	13.40	13.24

In this table Grand Groups 3, 6, and 8, are represented *in toto*; while in Grand Groups 1, 2, 5, 7, 9, and 11, only certain state groups are included, viz:

Grand Group 1: Connecticut, 1; Maine, 1; New Hampshire, 1; Rhode Island.

Grand Group 2: Delaware, 1; Maryland, 1; New Jersey, 1; New York, 1; Virginia, 1.
 Grand Group 5: Connecticut, 2; Maine, 2; New Hampshire, 2; New York, 2; Vermont.
 Grand Group 7: Illinois, 1; Michigan, 1; New York, 4.
 Grand Group 9: Alabama, 2; Georgia, 2; North Carolina, 3; South Carolina, 2; Virginia, 3; West Virginia, 1.
 Grand Group 11: Alabama, 3; Georgia, 3; South Carolina, 3.

FIG. 121.—SICK OVER 15 YEARS OF AGE IN GRAND GROUPS, OR IN PORTIONS THEREOF, PER 1000 OF LIVING POPULATION OVER 15 YEARS OF AGE.



The first question which arises on examining these figures is as to how far they actually represent the proportion of sick or disabled existing in the living population.

From the results of data derived from mutual-benefit societies in England it has been usual to estimate that for every case of death in a community there are two persons constantly sick; that is to say, that there is an average of two years' sickness to each death; or that if the annual death rate is 18 per 1000 the average number constantly sick is about 36 per 1000 of living population, and this seemed to be borne out by the proportion of those taken on sick report in the army. Thus, for the 5 years 1878-'82, inclusive, the proportion constantly on sick report per 1000 of mean strength in the United States army was, for the white troops 43.9, and for the colored troops 41.6, or for the whole an annual mean of 43.7 per 1000 of mean strength. This proportion is made up in the white troops of 34.6 of sick and 9.3 of those suffering from accidents and injuries. These figures, however, when applied to the population in civil life, would give entirely too great an estimate as to the amount of sickness. According to a paper by Dr. Cl. T. Campbell,^(a) in the *Popular Science Monthly* for February, 1885, the proportion of sickness in nearly one-half million males belonging to the society of Odd Fellows in the United States and British America for the 7 years 1875-'81 was 4.3 to each person, or a mean of 11.77 per 1000 each day. The data obtained from the Irish censuses of 1851, 1861, and 1871 showed that for every 1000 of the living population there were sick at the date of the census from 13.1 to 15.9 persons, and the statistics of disease as furnished by the census return of 1881, show that, exclusive of lunatics, blind, and deaf and dumb, there were returned as sick on the night of the census 7.75 per 1000 of the population.

In the general report on the census of Tasmania in 1881, page xxxiv, the following table is given, showing the relative proportions of disabling sickness and accidents in a given day per 1000 of living population for certain countries:

TABLE 147.—SHOWING FOR CERTAIN COUNTRIES THE PROPORTIONS OF SICKNESS AND ACCIDENTS PER DAY PER 1000 OF LIVING POPULATION.

Age periods.	SICKNESS.			ACCIDENTS.	
	Tasmania.	Victoria.	South Australia.	Tasmania.	Victoria.
All ages	15.13	11.81	13.09	1.94	1.80
0-15 years	5.42	3.89	.....	0.70	0.44
15-30 years	9.20	8.73	.....	1.44	1.57
30-50 years	15.60	15.99	.....	1.84	3.06
50-70 years	40.10	41.90	.....	5.52	5.15
70 and over	96.27	111.48	.....	9.08	6.62

Mr. Dutton, actuary to the Registry of Friendly Societies in England, estimates that the average number of days' sickness per member of such societies per annum is very nearly $1\frac{1}{2}$ weeks.

^a CAMPBELL, CL. T.: "Sick Rates and Death Rates," in *Popular Science Monthly*, February, 1885, Vol. XXVI, page 527.

Taking the members of the principal societies known as the Manchester Community of Odd Fellows, his calculations of the average number of days' sickness at different ages is shown in the following table:

TABLE 148.—SHOWING, WITH DISTINCTION OF SEX, THE NUMBER OF WEEKS' SICKNESS PER ANNUM AT CERTAIN AGES, AND THE AVERAGE PERIOD OF SICKNESS PER INDIVIDUAL PER ANNUM, ACCORDING TO EXPERIENCE OF THE MANCHESTER COMMUNITY.

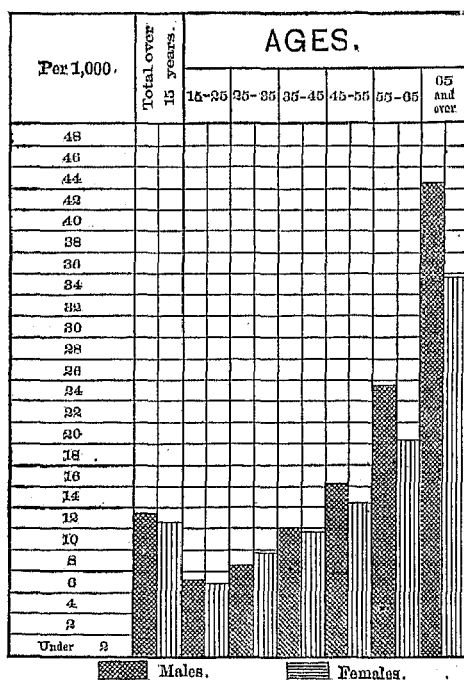
Age periods.	MALES.		FEMALES.	
	Weeks' sickness per annum.	Average period of sickness per individual per annum (in weeks).	Weeks' sickness per annum.	Average period of sickness per individual per annum (in weeks).
All ages from 15-65	9,692,505	1.314	10,592,701	1.334
15-20 years.....	844,428	0.606	851,701	0.606
20-25 years.....	820,188	0.737	896,085	0.737
25-45 years.....	3,224,134	0.995	3,476,146	0.995
45-65 years.....	4,803,760	2.736	5,368,220	2.751

It is to be remembered that the census is taken at a time of year when there is probably the least amount of sickness and disability among adults, and also that in the army a large number of soldiers are taken on sick report for comparatively trivial ailments, such as would not be considered to disable a person in civil life.

In the state of Rhode Island the census was taken under the direction of a skilled superintendent, Dr. E. M. Snow, who had so small a territory to deal with that he could, to a considerable extent, make use of his personal knowledge in selecting the enumerators, and it is therefore to be presumed that in this state the population schedules have been filled out with the greatest accuracy and completeness. In this state, putting aside those reported as blind, deaf and dumb, insane, crippled, etc., as has been done in all these computations, we find that, out of a total population of 276,528, 3,039 were reported as sick and disabled, being in a ratio of 10.98 per 1000; and the proportion of sick to the living population over 15 years of age was, males, 14.81, females, 11.92. It is probable, therefore, that the above tables, although derived from incomplete data, do represent to a very considerable extent the different proportions of sickness occurring in males and females, and in certain groups of ages, and that this is probably as reliable a table of this kind, based on a large number of observations, as any which have yet been published.

The following diagram shows the relations to sex and age of the proportion of sickness reported:

FIG. 122.—NUMBER OF SICK, WITH DISTINCTION OF SEX, PER 1000 OF POPULATION OVER 15 YEARS OF AGE.



It will be seen that the proportion of those sick is almost constantly higher in males than in females; it is highest in Alabama, in South Carolina, and in Maine, and the proportion increases steadily with advancing age.

SECTION X.—BIRTHS, BIRTH RATES, AND LIFE TABLES.

The total number of children under 1 year of age reported by the enumerators as living on the day of the census, plus the number of children reported as born and also dying within the census year, is 1,577,173, of which 806,866 were males and 770,307 females. Putting aside the effects of migration into and out of the country, these figures would, if accurate, represent the total number of births which occurred in the United States during the year. Unfortunately they are not accurate. In the first place, the number of children reported as living under 1 year of age is too small, owing to omissions and to the tendency to report ages in round numbers, causing many infants of 10 or 11 months of age to be reported as 1 year old. The reports of the number dying are also defective, as has been previously explained. The result is that the birth rate, as computed from these figures, is too low. This birth rate is 31.4 per 1000 of the aggregate living population.

No state or city in the United States has an accurate registration of births. Probably the most complete registration in any state is Massachusetts, in which for the calendar year 1880 the registration report gives a birth rate of 24.8 per 1000, while the census figures for the census year give a birth rate of 24 per 1000.

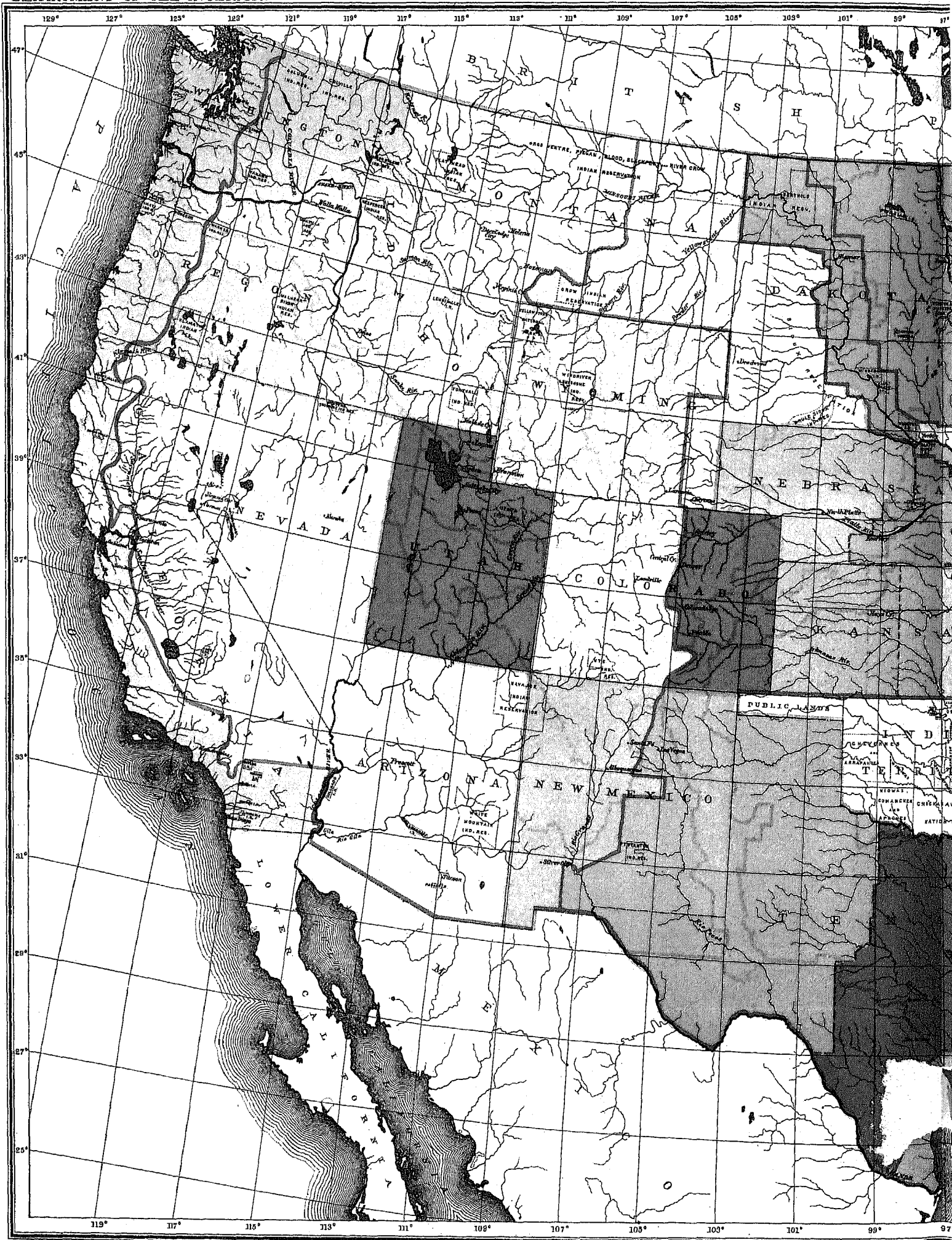
The total living population of the United States in 1870 was 38,558,371; in 1880, 50,155,783; showing a gain of 11,597,412, or a mean annual increase of 1,159,741. Of this, 281,219 may be taken as due to immigration, the total number of immigrants for the 10 years being 2,812,191 (see page xix, Part I of this report). This would make the mean annual increase due to excess of births over deaths to be 878,522. If, now, we take the mean annual death rate for the 10 years as having been 18 per 1000 of living population, and the mean population as being 44,000,000, the mean annual number of deaths would be 792,000, which, added to the excess of births over deaths, stated above, viz, 878,522, would give the mean annual number of births as 1,670,522, or 37.9 per 1000 of the assumed mean population. The true average annual birth rate is somewhat less than this, for the enumeration of the living population, more especially of the colored race in the southern states, was more defective in the Ninth than in the Tenth Census, and hence the mean annual rate of increase was less than that above stated. Probably the mean annual birth rate for the whole United States has been about 36 per 1000, in which case the birth rate, calculated from the returns, viz, 31.4, should be increased about 15 per cent. to give the true figure.

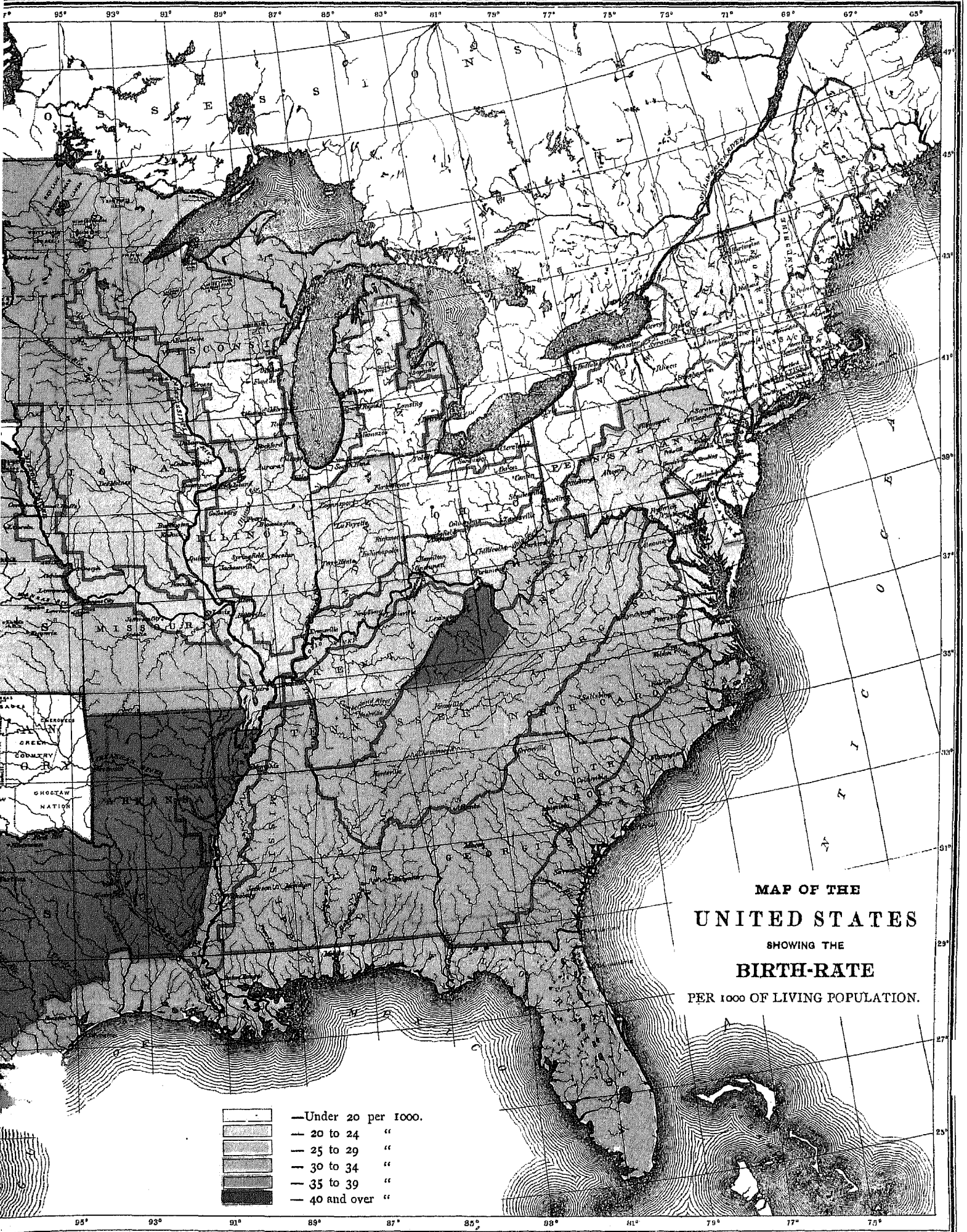
For the period 1876-'80 the mean annual birth rates of some European countries were as follows, viz: England and Wales, 35.4 per 1000; German empire, 39.3; Austria, 39.1; Denmark, 31.9; Sweden, 30.2; Switzerland, 31.3; and Belgium, 32.0.

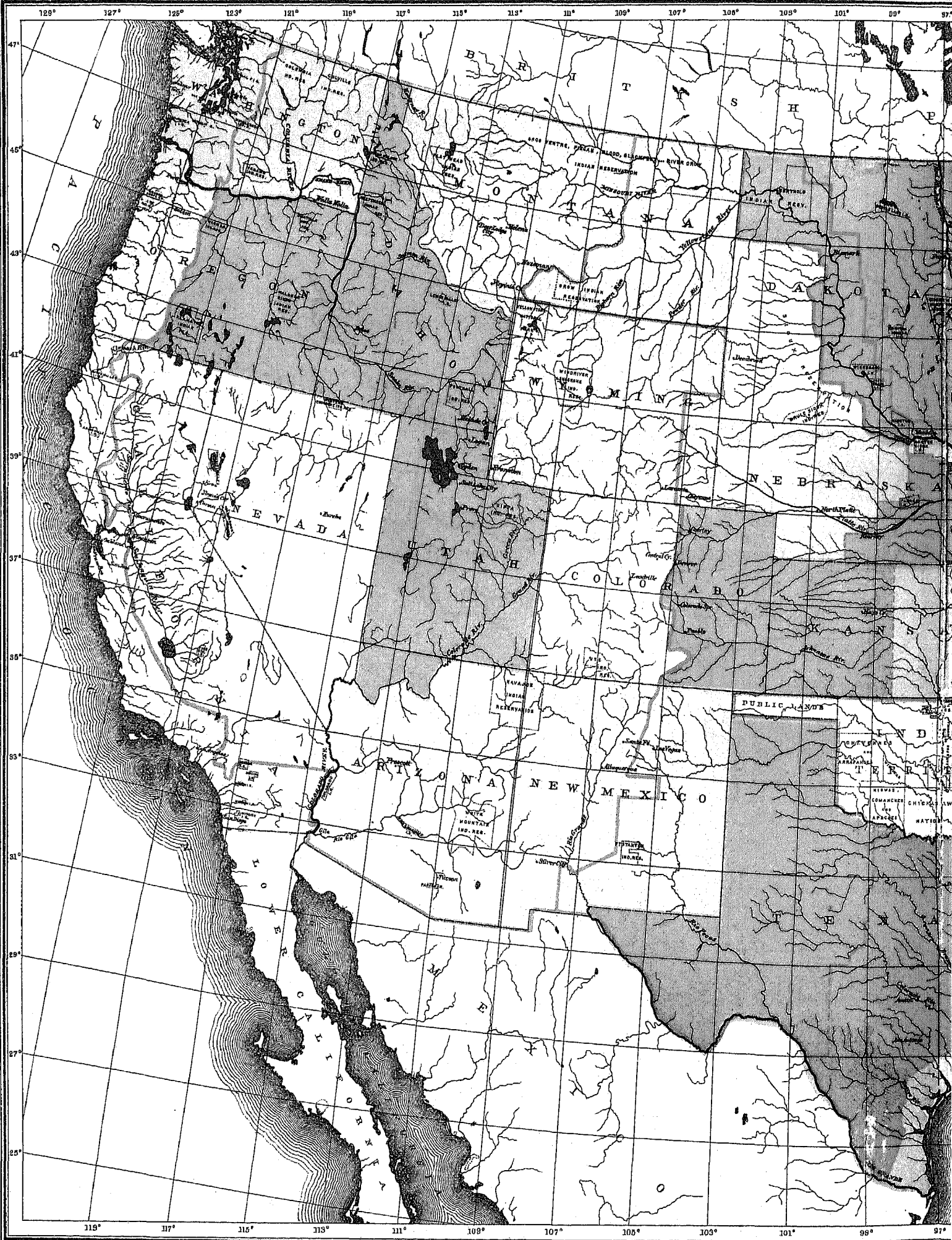
For the year 1880 the birth rate of England and Wales was 34.2 per 1000 persons living, varying from less than 30 to 38.5 in different localities. In the United States, according to the figures given, the rate varies from 19.1 in New Hampshire to 42.7 in Arkansas (see table 151).

Maps Nos. 19 and 20 indicate the varying proportions of the birth rate in different parts of the United States as indicated by the census returns. The first of these indicates the variations in the birth rate calculated in the usual manner, that is, per 1000 of the total living population. From this it will be seen that the birth rate is highest in the southern states and in the Northwest, and lowest in the northeastern states and in Montana, the western portions of Dakota and Colorado, in Arizona, Nevada, and the eastern part of California. This method of computation does not take into account the varying proportions of the two sexes existing in different portions of the country, a circumstance which, in the United States, and especially in the extreme West, has a considerable influence upon the ratios thus calculated.

Map No. 20 has been prepared from Table LIV of this volume, showing the proportions of the birth rate per 1000 women between the ages of 15 and 49 living in the various regions. The differences in birth rates indicated by this map are much greater than those shown on Map No. 19. The general distribution east of the meridian of 100° is much the same as when the ratios are calculated for the total population, but in the extreme western portion of the country a comparison of the two maps shows very clearly that the reason for the lower birth rate in that region indicated on Map No. 19 is mainly due to the smaller number of women of the child-bearing age in the living population of that region.



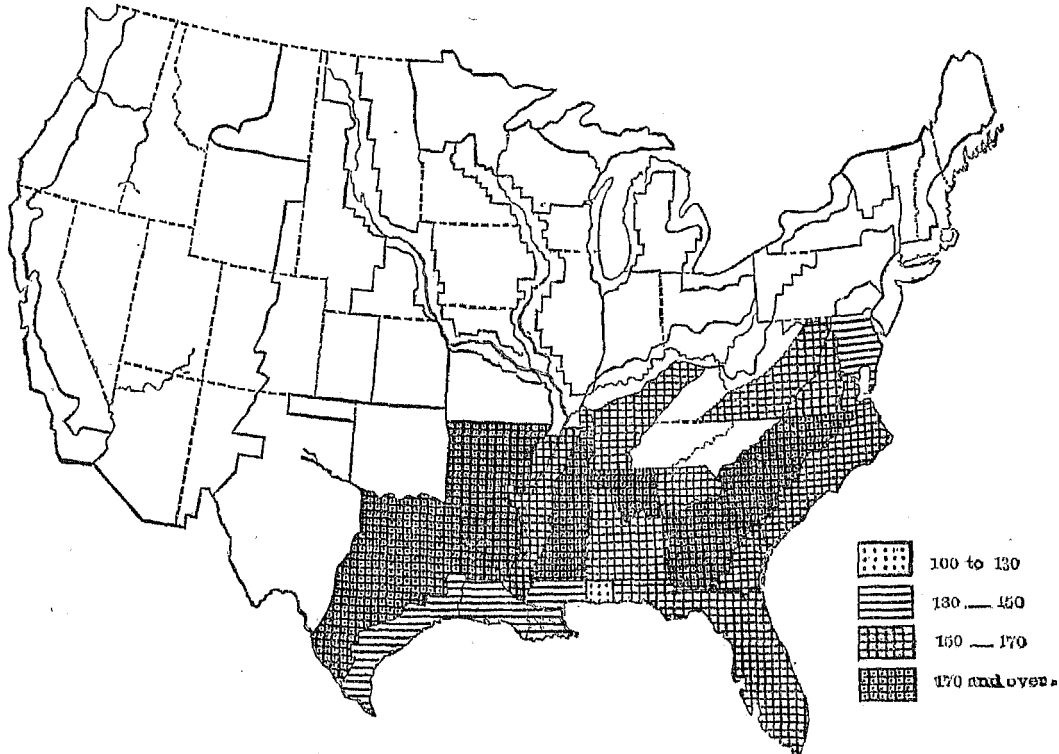






The following cartogram shows for the southern portion of the United States the distribution of the birth rate in relation to the number of colored women living between the ages of 15 and 49:

FIG. 123.—BIRTH RATE PER 1000 COLORED WOMEN BETWEEN THE AGES OF 15 AND 49. IN 4 SHADES.



Of the 1,577,173 births reported during the census year, 806,866 were males and 770,307 females, or 1,047 males to each 1000 females. The average number of male births to 1000 female births in several countries for the 10 years 1870-79, or for those years for which the data are available, were: England and Wales, 1,039; Scotland, 1,057; Ireland, 1,056; Belgium, 1,059; France, 1,064; German empire, 1,062; Italy, 1,071; Austria, 1,068; Switzerland, 1,063.

TABLE 149.—SHOWING THE NUMBER OF FEMALE BIRTHS TO 100,000 MALE BIRTHS IN THE UNITED STATES AND IN EACH STATE AND TERRITORY.

States and Territories.	Number of female births to 100,000 male births.	States and Territories.	Number of female births to 100,000 male births.	States and Territories.	Number of female births to 100,000 male births.	States and Territories.	Number of female births to 100,000 male births.
The United States.....	95,469	Iowa.....	94,874	New Mexico.....	95,507	Nebraska.....	98,024
Colorado.....	90,244	Minnesota.....	94,638	Wyoming.....	95,833	New Jersey.....	97,179
Vermont.....	91,207	Texas.....	94,753	Indiana.....	95,904	Rhode Island.....	97,215
Washington territory.....	92,500	Missouri.....	94,774	South Carolina.....	95,931	Mississippi.....	97,224
California.....	92,854	New York.....	94,804	Alabama.....	95,950	North Carolina.....	98,061
Michigan.....	93,088	Illinois.....	94,839	Kentucky.....	95,994	Oregon.....	98,776
Dakota.....	93,193	West Virginia.....	95,121	Georgia.....	96,017	Maine.....	98,829
Idaho.....	93,347	Arkansas.....	95,802	Nevada.....	96,176	Delaware.....	99,007
Tennessee.....	93,367	Kansas.....	95,953	Ohio.....	96,287	Louisiana.....	99,032
Massachusetts.....	93,581	Pennsylvania.....	95,549	District of Columbia.....	96,328	Florida.....	101,007
New Hampshire.....	93,584	Connecticut.....	95,553	Maryland.....	96,394	Montana.....	102,288
Wisconsin.....	93,923	Utah.....	95,558	Virginia.....	96,618	Arizona.....	102,368

TABLE 150.—SHOWING FOR CERTAIN STATES, WITH DISTINCTION OF COLOR, THE NUMBER OF FEMALE BIRTHS TO 100,000 MALE BIRTHS.

States.	NUMBER OF FEMALE BIRTHS TO 100,000 MALE BIRTHS.			States.	NUMBER OF FEMALE BIRTHS TO 100,000 MALE BIRTHS.		
	Total.	White.	Colored.		Total.	White.	Colored.
Alabama.....	95,956	94,261	97,805	Maryland.....	96,394	95,813	.....
Arkansas.....	95,302	92,406	.....	Mississippi.....	97,224	92,662	100,518
Delaware.....	99,007	97,095	.....	North Carolina.....	98,061	95,628	101,755
District of Columbia.....	96,328	93,643	100,175	South Carolina.....	95,931	92,258	98,027
Florida.....	101,007	96,774	105,810	Tennessee.....	93,367	91,877	.....
Georgia.....	96,017	91,036	101,554	Texas.....	94,753	93,556	.....
Louisiana.....	99,032	97,807	100,135	Virginia.....	96,618	94,046	90,811

The birth rate is greater in the colored than in the whites. In the 10 grand groups in which the distinction of color was made, the birth rate for the whites was 32.0 and for the colored 38.6 per 1000 of aggregate population, or for the whites 127.1 and for the colored 163.8 per 1000 of women between the ages of 15 and 49. The higher birth rate among the colored is in part due to the higher death rate among the colored infants in the earlier months of life, because with the loss of the infant and the consequent cessation of nursing, the probabilities of a fresh pregnancy increase. In these 10 grand groups out of each 1000 infants born, the number which died under three months of age was, for the whites, 66.7, and for the colored, 71.4. The influence of this factor on the birth rate is, however, very small.

The difference between the white and colored birth rate and the infantile death rate is less in the rural districts than in the cities. Taking 23 counties in the South containing cities or large towns, and having an aggregate population of 588,129 whites and 586,038 colored, we find that the birth rates per 1000 of living population were, for the whites, 28.71, and for the colored, 35.08; and the proportion of those born and dying within the census year per 1000 births was, for the whites, 100.01, and for the colored, 140.06. Taking 51 southern counties which contain only very small towns, and having an aggregate population of 542,705 whites and 591,336 colored, the birth rates per 1000 of living population were, for the whites, 34.31, and for the colored, 39.46; and the proportion of those born and dying during the census year per 1000 births was, for the whites, 62.61, and for the colored, 91.0.

TABLE 151.—SHOWING FOR THE STATES AND TERRITORIES THE NUMBER OF BIRTHS, AND THE PROPORTION OF BIRTHS IN 1000 OF AGGREGATE POPULATION.

States and Territories.	Births.	Per 1000 of aggregate population.	States and Territories.	Births.	Per 1000 of aggregate population.	States and Territories.	Births.	Per 1000 of aggregate population.
New Hampshire	6,638	19.1	Idaho	930	28.5	Kentucky	57,491	34.9
Arizona	779	10.3	Delaware	4,209	28.7	Kansas	35,105	35.2
Maine	13,586	20.9	Oregon	5,035	28.8	Virginia	53,594	35.4
Colorado	4,212	21.7	Pennsylvania	126,604	29.4	Louisiana	33,513	35.7
Vermont	7,350	22.1	Washington territory	2,233	29.7	West Virginia	22,474	36.3
Nevada	1,385	22.2	Indiana	60,460	30.0	Nebraska	10,709	36.9
Connecticut	14,027	22.5	Wisconsin	40,230	30.6	North Carolina	52,003	37.2
Montana	884	22.6	District of Columbia	5,454	30.7	Georgia	57,533	37.3
California	20,512	23.7	Illinois	96,042	31.2	Alabama	47,770	37.8
Massachusetts	42,735	24.0	Iowa	50,887	31.3	Tennessee	58,534	38.0
Rhode Island	6,798	24.6	Maryland	29,575	31.6	South Carolina	37,897	38.1
New York	130,622	25.7	Missouri	71,858	33.1	Mississippi	43,273	38.2
Wyoming	564	27.1	Dakota	4,513	33.4	Texas	65,694	41.3
New Jersey	31,109	27.5	New Mexico	4,015	33.6	Utah	6,031	41.6
Michigan	45,843	28.0	Minnesota	26,428	33.8	Arkansas	34,258	42.7
Ohio	90,983	28.4	Florida	9,379	34.8			

TABLE 152.—SHOWING FOR THE STATES AND TERRITORIES THE NUMBER OF BIRTHS, AND THE PROPORTION OF BIRTHS IN 1000 WOMEN BETWEEN THE AGES OF 15 AND 49.

States and Territories.	Births.	Per 1000 women between 15 and 49.	States and Territories.	Births.	Per 1000 women between 15 and 49.	States and Territories.	Births.	Per 1000 women between 15 and 49.
New Hampshire	6,638	71.6	Nevada	1,385	122.2	Wyoming	564	154.7
Maine	13,586	81.1	Indiana	60,460	122.4	Georgia	57,533	156.0
Massachusetts	42,735	82.9	Maryland	29,575	122.8	Kansas	35,105	156.4
Connecticut	14,027	83.2	Illinois	96,042	126.8	Alabama	47,770	156.7
Rhode Island	6,798	86.0	Wisconsin	40,230	131.4	Washington territory	2,233	158.0
Vermont	7,350	88.7	Iowa	50,887	133.0	West Virginia	22,474	158.2
New York	130,622	93.9	Missouri	71,858	138.8	Tennessee	58,534	158.7
District of Columbia	5,454	103.1	New Mexico	4,015	141.5	South Carolina	37,897	162.6
New Jersey	31,109	103.3	Oregon	5,035	145.0	Mississippi	43,273	165.2
California	20,512	110.7	Kentucky	57,491	145.2	Nebraska	10,709	169.0
Ohio	90,983	112.6	Florida	9,379	145.9	Dakota	4,513	171.2
Delaware	4,209	113.2	Virginia	53,594	147.3	Idaho	930	183.3
Colorado	4,212	113.9	Louisiana	33,513	148.5	Texas	65,694	187.4
Arizona	779	114.4	Minnesota	26,428	151.7	Arkansas	34,258	190.0
Michigan	45,843	114.7	Montana	884	153.4	Utah	6,031	198.9
Pennsylvania	126,604	115.1	North Carolina	52,003	154.7			

LIFE TABLES.

The most satisfactory method of comparing the mortality of different localities, periods of time, races, occupations, etc., is by the construction of what are known as life tables. A life table is intended to show what would happen in a stationary population, that is, one in which the births and deaths are equal, and which is unaffected by migrations, if it were placed under the same circumstances as the population from which the data are derived; and the most important part of such a table is that which gives the expectation of life at each age. The preparation for any given locality, race, or occupation, in this country, of a life table which shall accurately represent the tendency to death or the probability of survival at each age is practically impossible, because of the want of accuracy in the necessary data, and because of the irregular migrations of the population. It should be clearly understood that all tables of vital statistics, including data derived from large numbers of people, even when these are obtained by the most accurate census possible, and by the most complete system of registration which can be enforced, give probabilities only, and that scientific accuracy in this field is practically unattainable. Theoretically, it would be necessary, in order to determine the true mortality of the given race, period of time, or occupation, that we should have data relating to a certain number of individuals or a community which must remain the same, so far as migrations are concerned, from the beginning to the end of the inquiry. Impossible as it is to secure this for large communities, it would, even if obtained, be insufficient for scientific accuracy, since this requires that the facts which we group together should be strictly comparable. Take, for example, the question which an ordinary life table is intended to answer: Of 100,000 children born, how many die at each age? A strictly accurate answer to this question could be given only by having the precise dates of birth and of death of each of the 100,000 individuals. Moreover, if we are inquiring into the influences of locality, as, for instance, into the healthfulness of a county in Maine as compared with one in Missouri, it would be necessary that these 100,000 children should have been born on the same day in the respective localities under consideration, since, if born at successive periods of time, even in the same locality, some of them would be subject to meteorological influences, epidemics, etc., which did not affect the others. There is no life table in existence calculated on such data as these, nor is it possible that there should be. Nevertheless, in using large masses of data, the individual errors tend to neutralize each other, and already a large amount of information has been collected with regard to the average duration of human life and some of the circumstances which chiefly affect it, which is of very considerable practical value. Probably the most complete statistics of this character in existence are those contained in the official records of England and of Sweden, yet these have often been severely criticized because of the probabilities of error which arise in their use in attempts to determine the healthfulness of different localities, or the influence of age, sex, conjugal relations, occupation, etc., on the duration of human life. It may at first thought, therefore, seem impossible, from the imperfect data obtainable in the United States, to prepare life tables of any practical value or interest, and, so far as the whole country is concerned, *en masse*, this is true. A life table for the whole United States can be constructed only by making some arbitrary assumption as to the amount of deficiency in the number of deaths reported, and by assuming that this deficiency exists in some definite proportion in the two sexes and throughout the several ages. Even were it possible to prepare a life table for the whole country which should be reasonably accurate, it would be of very little value. The United States includes too many degrees of latitude and longitude, too great varieties of topography, of climate, and of race, to make conclusions drawn from the average expectation of life of its people of much practical value. We want not one, but many such tables, which shall indicate the differences between localities, periods of time, race, etc., as affecting the duration of life of the people. After a careful examination of the data available for the purpose, it has seemed possible to have approximate life tables prepared for certain cities in different parts of the country, and for the states of Massachusetts and New Jersey, which would be comparable with each other, and would give some useful indications as to the relative healthfulness of these several localities, and this has accordingly been done, and the results are given in Table LXIV of this volume.

The method employed in preparing these tables is substantially that of Dr. Farr; the figures used are those actually obtained by the census and from the records of registration of deaths. In calculating a life table, much depends upon the accuracy and completeness of the records for the first year of life, as the mortality deduced from these enters as a factor into all the subsequent calculations. There are deficiencies both in the number of those reported as living under 1 year of age and in the number of those reported as dying under 1 year of age. No attempt has been made to correct these deficiencies. It is assumed that they occur in the same proportion in each locality, and hence that the results are comparable. In calculating the English life tables, Dr. Farr made an elaborate series of corrections of these data, and the corrections are involved in the approximate table prepared by Mr. N. H. Humphreys, in a paper on "The decline in the English death rate", published in the *Journal of the Statistical Society* for 1883, since he assumes that the rate of mortality in each of the first 5 years of life as shown in Dr. Farr's table, had declined in the same proportion as the rate for the entire group of 5 years as shown by his own calculation, and that the same was true for each group of ages.

The approximate life tables presented in connection with this report have been calculated by decennial groups of ages, 15-24, 25-34, etc., and by the use of arithmetical means, so that in a graphic construction the line indicating the mortality or the expectation of life is not a curve, as it should be from an accurate table, but a series of straight lines joining each other at various angles.

For purposes of comparison, the method of Mr. Humphreys was also employed with the data of Massachusetts and New Jersey, taking Dr. Farr's figures as a standard, and calculating the proportionate change at each age. The tables thus resulting are also given (Table LXV of this volume), together with their graphic representation; and on comparing these with the approximate tables calculated by the short method above indicated, it will be seen that for the first 60 years of life the difference is small.

From these life tables have been prepared a series of diagrams, a part of which are printed on semi-transparent

TABLE 153.—SHOWING EXPECTATION OF LIFE IN MASSACHUSETTS.

Age.	English.		MASSACHUSETTS, 5 YEARS.		MASSACHUSETTS.		NEW JERSEY.		DISTRICT OF COLUMBIA.				BOSTON.		NEW YORK CITY, 3 YEARS.		NEW YORK CITY.		BROOKLYN.		PHILADELPHIA.	
			Total population.		White.		White.		White.		Colored.		White.		Total population.		White.		White.		White.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
0	41.92	45.25	41.74	43.50	44.06	45.22	45.59	48.05	41.06	43.67	23.58	26.92	37.04	39.11	29.04	32.77	39.28	36.77	37.52	39.70	40.16	43.70
1	48.04	50.75	40.84	50.24	51.18	51.20	52.65	51.28	48.29	50.88	34.73	37.92	40.20	47.10	38.22	41.09	42.81	45.08	45.48	46.40	48.23	50.86
2	50.73	52.81	52.17	52.35	53.30	53.06	54.39	55.71	50.32	53.30	41.04	49.54	49.53	50.15	42.59	45.49	40.75	49.14	49.13	50.20	50.20	52.91
3	51.45	53.57	52.76	52.89	53.88	53.60	54.94	56.13	50.63	53.70	43.22	45.81	50.32	50.72	43.98	46.85	47.79	50.02	50.09	51.24	50.73	53.75
4	51.01	53.77	52.93	53.00	54.05	53.75	54.94	56.03	50.57	53.82	43.52	45.63	50.73	51.07	44.62	47.55	48.12	50.29	50.38	51.56	50.73	53.86
5	51.47	53.65	52.78	52.88	53.92	53.67	54.71	55.66	50.25	53.45	43.36	45.61	50.71	51.00	44.85	47.71	48.05	50.24	50.47	51.58	50.39	53.64
10	48.16	50.32	49.92	50.04	51.01	50.93	51.57	52.52	47.05	50.37	41.02	43.24	47.49	48.42	42.40	45.27	44.92	46.90	48.09	49.14	46.96	50.15
15	43.94	46.15	45.86	46.08	46.85	46.86	47.36	48.40	42.66	46.11	37.21	39.06	43.20	44.15	38.24	41.15	40.60	42.63	43.79	45.04	42.62	45.99
20	39.86	42.10	42.17	42.78	43.09	43.49	43.20	44.51	38.73	42.10	34.16	36.52	39.58	40.70	34.41	37.28	36.62	38.65	39.76	40.97	38.70	42.04
25	36.05	38.36	39.04	39.78	39.81	40.44	39.80	41.15	34.92	38.53	31.53	33.99	36.40	37.58	31.18	33.95	33.17	35.23	36.25	37.64	35.39	38.63
30	32.47	34.75	35.68	36.70	36.88	37.28	36.26	37.76	31.85	35.42	29.04	31.41	33.31	34.36	28.24	31.04	29.99	32.23	32.92	34.47	32.22	35.46
35	28.88	31.12	32.32	33.63	32.96	34.13	32.71	34.87	28.78	32.30	26.54	28.83	30.22	31.13	25.29	28.13	26.81	29.23	29.60	31.30	29.66	32.20
40	25.59	27.63	28.86	30.29	29.48	30.78	29.20	30.80	25.98	28.75	23.18	26.08	26.86	27.80	22.54	25.24	23.87	26.30	26.84	28.12	25.84	29.08
45	22.34	24.21	25.41	26.95	26.01	27.43	25.70	27.24	23.18	25.20	19.81	23.34	23.51	24.58	19.80	22.35	20.93	23.36	23.98	24.94	22.62	25.86
50	19.14	20.80	22.02	23.50	22.52	23.93	22.33	23.70	20.12	22.00	17.30	20.50	20.48	21.33	17.16	19.36	18.15	20.33	20.10	21.62	19.65	22.58
55	16.09	17.37	18.63	20.05	19.02	20.43	18.96	20.15	17.06	18.79	14.78	17.07	17.44	18.08	14.51	16.36	15.37	17.30	17.12	18.30	16.68	19.29
60	13.81	14.32	15.00	16.91	15.08	17.26	16.10	16.89	14.21	15.81	12.64	14.76	14.68	15.29	12.20	13.76	13.02	14.50	14.44	15.48	14.02	16.23
65	10.70	11.65	12.67	13.77	12.85	14.08	13.25	13.93	11.36	12.88	10.51	11.84	11.93	12.50	9.89	11.15	10.68	11.70	11.76	12.66	11.36	13.17
70	8.44	9.08	10.32	11.30	10.03	11.60	10.99	11.12	9.57	10.38	8.58	9.80	9.90	10.26	8.47	9.34	9.16	9.72	9.73	10.58	9.50	10.88
75	6.52	7.04	8.08	8.83	8.81	9.13	8.54	8.60	7.78	7.94	6.66	7.77	7.87	8.02	7.05	7.53	7.64	7.75	7.70	8.40	7.63	8.60
80	4.90	5.33	6.36	7.37	7.06	7.62	7.40	7.36	6.52	6.88	6.00	6.74	7.22	7.06	6.22	6.54	6.66	6.64	6.62	7.17	6.46	7.33
85	3.78	4.15	5.63	5.91	5.82	6.12	6.26	6.13	5.26	5.81	5.33	5.71	6.57	6.09	5.39	5.54	5.69	5.52	5.53	5.85	5.29	6.06
90	2.88	3.16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
95	2.20	2.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
100	1.72	1.84	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

paper, in loose sheets, so that they may be superimposed and the lines for different localities directly compared. These diagrams, 74 in number, are contained in a portfolio.

The following table and diagrams show the expectation of life thus calculated, together with the expectation of life according to Farr's English life table, according to a table derived from the experience of 30 American life-insurance companies, (a) and according to the Carlisle life table, which are added to show the nature of the deviations of these approximate life tables from those which have been carefully computed and adjusted by the aid of fairly reliable data:

a See *System and Tables of Life Insurance, from the experience of thirty American life offices.* By Levi W. Meech. Royal, 8vo, page 230. Norwich, Connecticut, 1881.

NEW JERSEY, AND SEVERAL CITIES, AND BY CERTAIN LIFE TABLES.

BALTIMORE.				CHARLESTON.				NEW ORLEANS.				CINCINNATI.		CHICAGO.		SAINT LOUIS.		SAN FRANCISCO.		English life No. 3.		Thirty American offices.		Carlisle.	Age.	
White.		Colored.		White.		Colored.		White.		Colored.		White.		White.		White.		White.		M.	F.	M.	F.	Per-sons.		
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.							M.	F.
36.49	39.86	21.00	25.51	35.51	41.17	21.30	22.33	33.87	42.33	22.78	28.35	37.73	43.10	38.11	41.29	36.75	41.10	38.02	44.02	39.91	41.85	....	....	38.72	0
44.73	47.36	32.20	38.44	41.27	49.33	33.02	32.09	41.98	50.22	33.33	30.83	46.19	50.69	40.82	47.78	49.71	52.87	45.47	51.89	40.05	47.31	....	....	44.68	1
48.42	51.18	39.25	44.57	44.69	52.98	38.20	39.05	44.04	52.42	35.67	44.55	49.13	53.38	50.00	51.32	52.74	55.91	46.91	52.97	48.83	49.40	....	....	47.55	2
40.77	52.33	41.19	46.13	44.39	52.00	39.69	40.92	44.34	52.73	36.74	45.76	50.10	54.23	51.04	52.37	52.69	56.12	47.00	53.32	49.91	50.20	....	....	49.82	3
50.27	52.90	41.84	46.30	44.22	52.22	39.54	41.53	44.18	52.68	36.38	45.77	50.20	54.43	52.32	53.15	52.40	55.90	46.94	53.12	49.81	50.43	....	....	50.76	4
50.40	52.99	41.84	46.79	44.77	51.43	39.65	41.71	43.68	52.09	36.26	45.27	49.87	54.26	52.44	53.35	51.90	55.49	46.44	52.64	49.71	50.33	....	....	51.25	5
48.50	50.83	40.00	44.75	41.84	46.63	37.29	38.64	40.09	48.23	33.02	41.98	46.90	51.20	50.01	51.02	48.25	51.83	42.00	48.82	47.05	47.67	49.99	48.05	48.82	10	
44.35	46.58	36.84	42.00	37.83	42.52	34.30	35.10	36.06	43.81	29.09	38.41	42.02	46.95	46.67	47.54	43.99	47.52	38.47	44.30	43.18	43.00	46.57	44.19	45.00	15	
40.36	42.65	33.76	39.47	33.34	39.14	30.64	32.87	31.09	39.60	26.01	35.25	38.53	43.00	42.67	43.74	39.04	43.52	34.50	40.28	30.48	40.29	43.07	40.82	41.46	20	
36.86	39.27	31.02	36.34	30.02	35.42	28.95	30.40	28.50	36.19	24.98	33.07	34.94	39.47	38.96	40.00	36.02	39.92	31.14	36.85	36.12	37.04	39.49	37.80	37.86	25	
33.45	36.04	27.76	33.53	27.45	32.72	26.40	27.88	25.02	33.08	23.44	30.53	31.52	36.10	35.47	36.58	32.64	36.66	28.00	33.68	32.70	33.81	35.85	34.89	34.34	30	
30.04	32.81	24.51	30.72	24.88	30.03	23.86	25.35	22.75	29.98	21.91	27.99	28.10	32.72	31.98	33.08	29.27	33.40	25.04	30.52	29.40	30.69	32.17	31.78	31.00	35	
26.70	29.40	21.71	27.64	22.42	26.78	20.80	22.22	20.40	27.11	19.58	25.40	25.08	29.29	28.48	29.62	26.04	30.12	22.40	27.30	26.08	27.84	28.48	28.48	27.61	40	
23.35	25.99	18.91	24.56	19.07	23.58	17.75	19.09	18.18	24.24	17.25	22.82	22.07	25.80	24.98	26.17	22.80	26.84	19.75	24.08	22.70	24.06	24.82	25.02	24.46	45	
19.90	22.58	16.26	21.58	17.18	20.41	15.14	16.31	16.00	21.24	15.82	19.74	19.19	22.35	24.06	22.62	20.14	23.44	17.47	20.94	19.54	20.75	21.24	21.33	21.11	50	
16.56	19.16	13.62	18.59	14.30	17.29	12.52	13.53	13.33	18.25	14.39	16.65	16.31	18.84	18.33	19.07	17.47	20.04	15.19	17.80	16.45	17.43	17.80	17.73	17.58	55	
14.06	15.96	11.29	15.54	11.92	14.36	10.64	11.44	11.52	15.64	12.10	14.33	13.62	15.70	15.37	16.02	15.26	16.98	12.82	15.04	13.53	14.34	14.56	14.37	14.34	60	
11.57	12.77	8.96	12.48	9.45	11.43	8.77	9.35	9.21	13.03	9.80	12.01	10.94	12.56	12.41	12.96	13.06	13.93	10.44	12.28	10.82	11.51	11.00	11.31	11.79	65	
10.09	10.40	7.80	9.94	8.02	9.60	7.72	8.09	8.00	10.86	8.10	9.87	9.06	10.46	10.05	10.94	11.56	12.16	8.90	9.98	8.45	9.92	8.97	8.62	9.18	70	
8.61	8.03	6.65	7.39	6.50	7.70	6.68	6.83	6.78	8.70	6.41	7.73	7.19	8.35	7.69	8.93	10.07	10.39	7.35	7.07	6.40	6.93	6.72	6.34	7.01	75	
7.39	6.90	6.20	6.49	5.86	7.32	5.90	5.99	6.02	7.44	6.16	6.70	6.50	6.98	6.76	7.82	9.36	9.26	7.66	6.81	4.93	5.26	4.87	4.49	5.51	80	
6.17	5.78	5.86	5.59	5.13	6.88	5.13	5.15	5.25	6.18	5.92	5.78	5.82	5.60	5.84	6.71	8.65	8.14	7.96	5.95	3.73	3.98	3.40	3.08	4.12	85	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.84	3.01	2.17	2.05	3.28	90
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.17	2.29	1.84	1.34	3.53	95
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.68	1.76	.....	.....	2.28	100

FIG. 124.—EXPECTATION OF LIFE AT BIRTH.

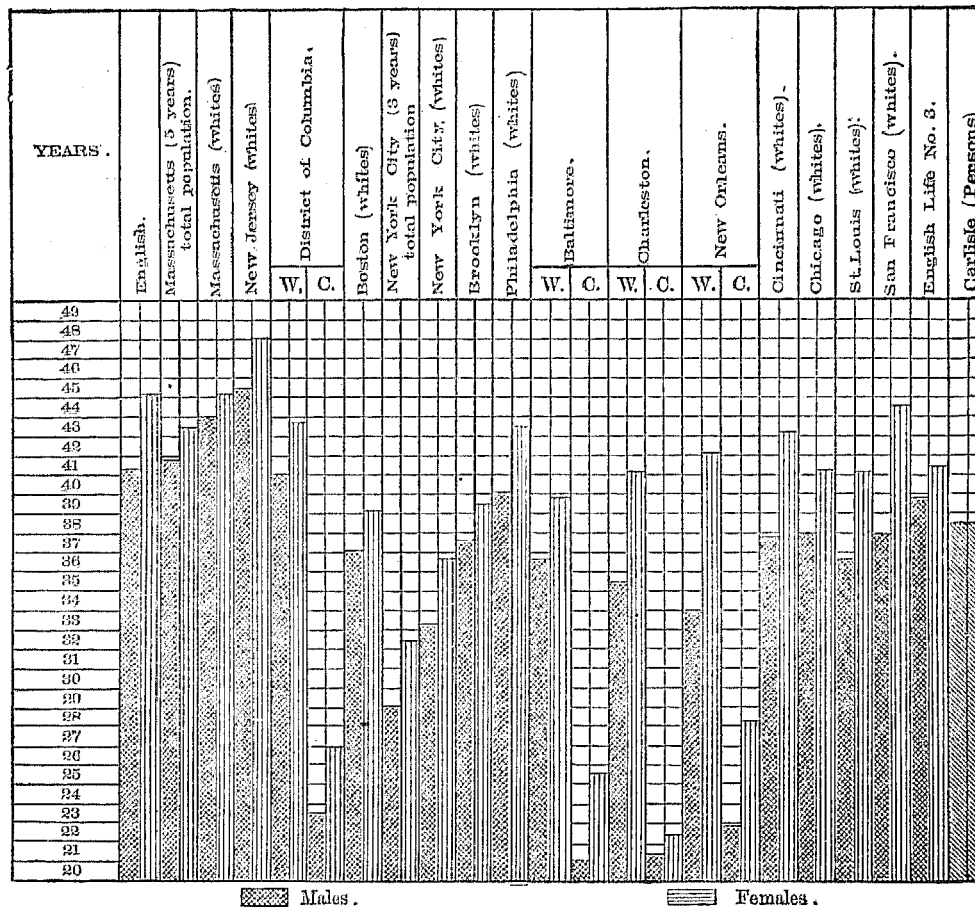


FIG. 125.—EXPECTATION OF LIFE AT 15.

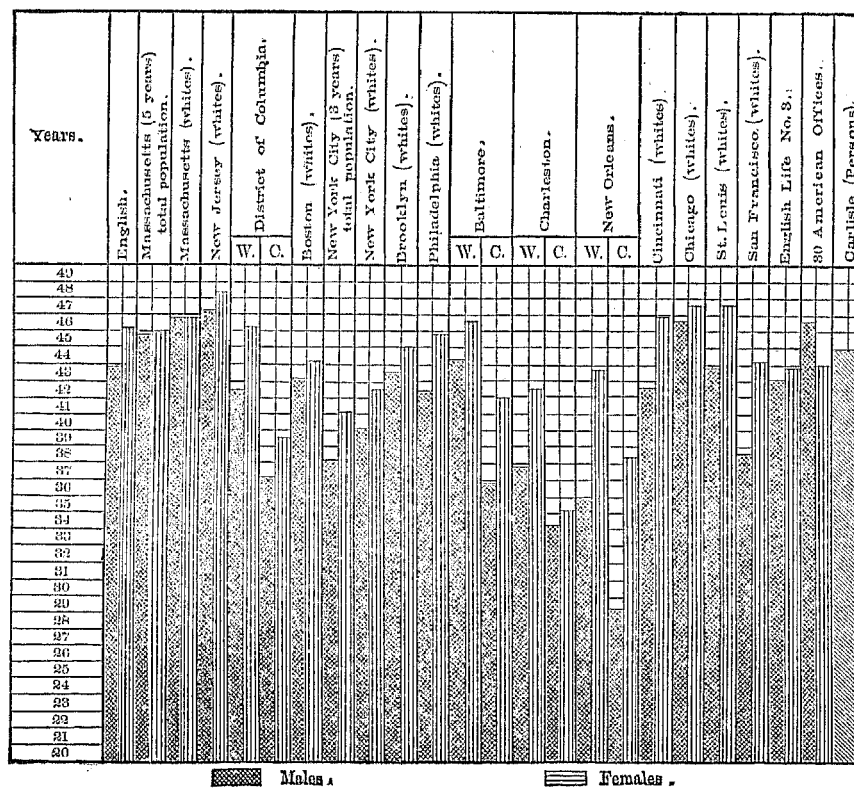


FIG. 126.—EXPECTATION OF LIFE AT 35.

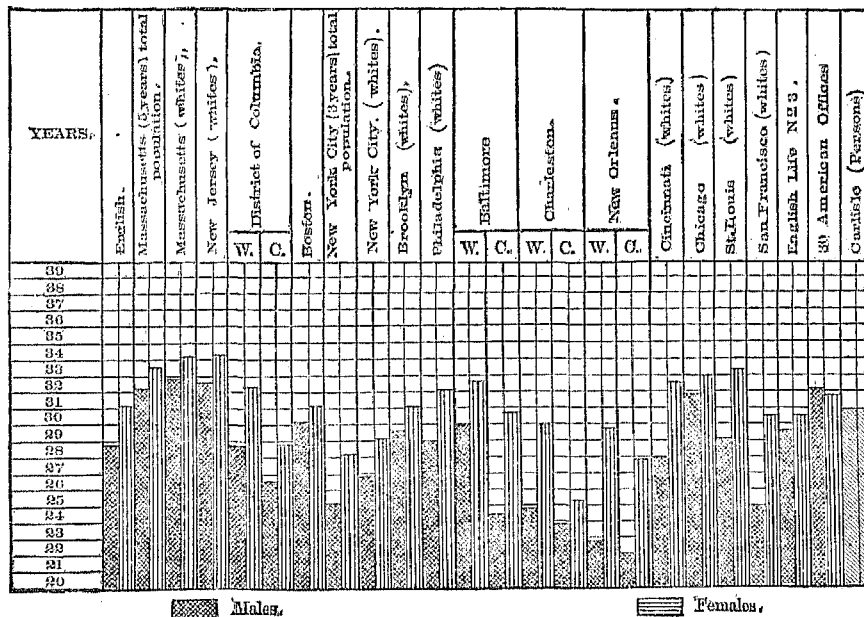
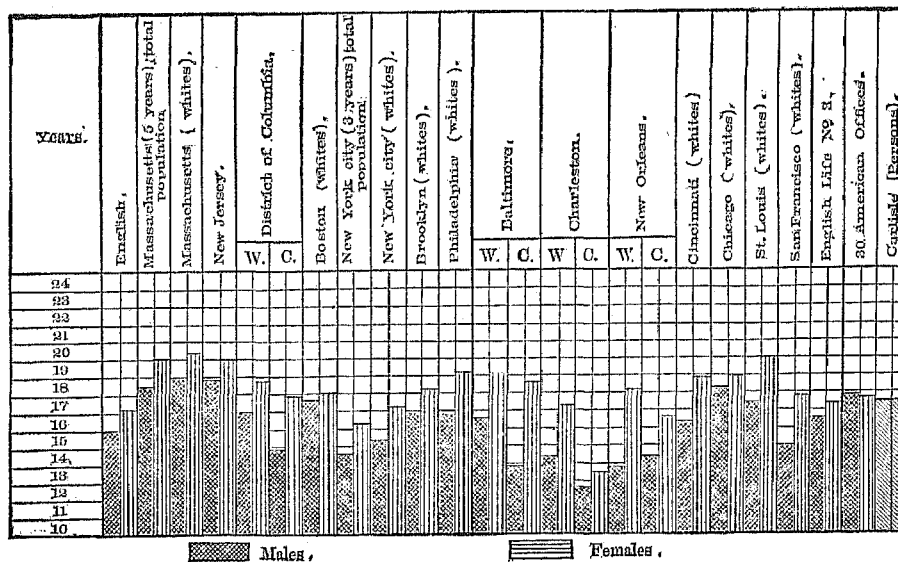


FIG. 127.—EXPECTATION OF LIFE AT 55.



It might at first be supposed, by those who have given no special attention to this subject, that the most accurate as well as the easiest way of computing the mortality for each year of age as the basis for a life table would be to take the numbers actually reported as living and dying at each year of age, and to make the calculations directly from them. This, however, is not the case, owing to the tendency of the average man or woman to report the ages of the inmates of the household in what are commonly termed "round numbers"—that is, by even tens, or, to a less extent, by fives. Thus, a person whose age is 29 or 31 will very often be returned as 30. The extent to which this error affects returns by single years of age will be seen from the following table:

TABLE 154.—SHOWING FOR MASSACHUSETTS AND NEW JERSEY, BY SINGLE YEARS, WITH DISTINCTION OF SEX, THE POPULATION AS RETURNED BY CENSUS ENUMERATORS AND THE DEATHS AS REPORTED BY REGISTRATION.

Age.	MASSACHUSETTS.								NEW JERSEY.							
	Population.				Deaths.				Population.				Deaths.			
	White.		Colored.		White.		Colored.		White.		Colored.		White.		Colored.	
	Male.	Female.	M.	F.	M.	F.	M.	F.	Male.	Female.	M.	F.	M.	F.	M.	F.
0.....	18,754	18,315	258	260	4,008	3,144	71	47	13,065	13,481	527	519	2,223	1,875	130	107
1.....	16,541	16,182	150	169	980	889	26	23	11,760	11,702	437	449	593	527	20	24
2.....	18,140	17,846	216	213	530	509	9	8	13,072	12,942	454	478	379	321	18	13
3.....	18,042	17,500	195	192	885	376	5	6	13,179	13,112	443	438	236	212	11	7
4.....	18,133	17,703	200	220	291	300	3	2	13,354	13,183	450	462	184	165	6	7
5.....	18,037	18,115	192	210	202	230	5	.....	13,205	13,231	433	470	132	130	1	6
6.....	17,018	17,395	176	194	160	158	3	2	13,209	13,041	429	450	108	100	7	2
7.....	17,143	17,114	178	189	119	144	1	2	12,775	12,891	395	452	78	84	1	.....
8.....	16,365	16,233	176	174	98	113	2	1	12,482	12,173	389	409	65	60	3	4
9.....	15,977	15,793	148	171	91	78	.....	1	11,784	11,786	420	380	53	46	1	1
10.....	16,847	16,600	178	158	66	50	.....	.....	12,507	12,406	423	413	48	55	2	1
11.....	14,064	15,110	135	129	55	71	.....	1	10,976	10,791	317	351	43	35	5	.....
12.....	16,845	16,439	150	159	57	65	.....	1	12,298	12,220	422	419	34	32	2	3
13.....	15,279	15,474	140	141	43	56	.....	1	11,086	11,160	351	375	23	36	1	3
14.....	16,335	15,938	153	152	54	55	.....	2	11,747	11,278	408	376	37	37	2	4
15.....	15,114	15,479	111	113	60	73	2	3	10,283	10,340	334	352	32	28	3	6
16.....	15,156	16,404	122	143	64	108	.....	1	10,591	10,970	342	340	33	45	2	1
17.....	15,290	16,282	126	166	83	119	1	.....	10,263	10,691	304	369	41	47	4	4
18.....	16,790	19,525	129	182	110	161	2	2	10,741	12,357	378	403	46	72	7	4
19.....	17,425	18,061	182	195	118	157	.....	2	10,717	11,025	370	405	60	70	5	5
20.....	17,481	21,555	177	240	144	159	2	1	10,611	12,482	347	486	63	65	7	2
21.....	16,422	17,744	149	167	132	156	1	1	10,384	9,856	408	343	59	84	3	2
22.....	17,383	20,853	214	236	137	199	3	7	10,067	11,280	409	434	68	79	8	6
23.....	16,480	19,349	192	238	146	219	3	1	9,810	10,401	427	463	81	79	5	4
24.....	15,858	18,934	217	273	129	174	.....	3	9,460	10,165	404	464	87	94	3	6
25.....	17,502	20,201	298	272	130	160	1	4	9,755	10,668	458	524	77	69	2	6
26.....	14,052	16,816	188	229	111	166	5	1	8,506	9,037	327	399	53	73	3	3
27.....	13,858	15,228	199	222	120	173	1	2	7,770	7,929	318	328	50	62	5	4
28.....	16,295	17,828	240	238	140	179	4	1	9,155	9,793	364	397	63	82	2	2
29.....	11,813	13,102	167	191	116	127	2	4	9,981	7,293	259	246	77	71	2	1
30.....	20,583	21,967	442	330	133	162	5	2	11,425	12,411	569	591	71	80	3	4
31.....	9,493	9,946	98	90	101	106	.....	1	5,776	5,561	172	177	45	60	1	5
32.....	12,790	13,941	172	168	109	152	2	1	7,554	7,959	262	289	69	64	2	4
33.....	11,179	12,768	160	169	117	145	.....	3	6,513	6,943	216	226	67	84	1	1
34.....	10,707	11,914	150	126	112	138	1	.....	7,713	6,668	216	202	63	67	3	5
35.....	17,573	18,678	327	242	144	170	5	1	10,876	10,924	522	488	96	91	3	7
36.....	10,962	12,334	143	142	133	147	2	3	7,131	7,183	276	263	65	61	2	1
37.....	9,863	11,061	112	120	105	125	5	.....	6,032	6,178	208	230	64	55	2	1
38.....	12,166	13,612	172	132	132	145	2	1	7,736	7,935	274	281	72	79	2	1
39.....	8,798	10,153	138	128	111	131	1	3	5,929	5,985	233	234	68	47	5	2
40.....	20,146	20,748	311	277	148	169	4	6	12,500	12,165	539	527	105	99	7	2
41.....	6,624	7,277	65	58	84	82	1	1	4,189	3,924	107	113	59	46	2	3
42.....	9,741	11,047	106	90	105	132	2	.....	5,866	6,076	166	180	56	58	6	1
43.....	8,041	9,058	77	79	87	100	2	1	4,751	4,961	139	134	68	45	2	1
44.....	7,474	8,710	61	61	91	103	.....	.....	4,626	4,604	112	130	45	60	2	2
45.....	14,739	14,911	182	151	159	145	4	8,509	8,131	324	357	108	79	3	2

BIRTHS, BIRTH RATES, AND LIFE TABLES.

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TABLE 154.—SHOWING FOR MASSACHUSETTS AND NEW JERSEY, BY SINGLE YEARS, WITH DISTINCTION OF SEX, THE POPULATION AS RETURNED BY CENSUS ENUMERATORS, Etc.—Continued.

Age.	MASSACHUSETTS.								NEW JERSEY.							
	Population.				Deaths.				Population.				Deaths.			
	White.		Colored.		White.		Colored.		White.		Colored.		White.		Colored.	
	Male.	Female.	M.	F.	M.	F.	M.	F.	Male.	Female.	M.	F.	M.	F.	M.	F.
46.....	7,627	8,467	59	64	102	118	1	1	4,491	4,647	131	138	58	65	2	2
47.....	7,085	7,964	74	67	93	94	1	2	4,223	4,268	108	107	50	56	2	2
48.....	8,394	9,414	64	81	106	115			5,055	5,271	164	170	66	46	2	3
49.....	6,516	7,480	56	69	105	96		1	4,089	4,068	107	125	48	50	3	
50.....	14,847	16,399	159	231	140	138	4	1	8,524	8,646	343	388	100	78	3	1
51.....	5,061	5,508	30	36	97	83			3,040	2,797	84	82	53	41	2	1
52.....	7,062	7,714	64	63	125	105			4,370	4,071	124	132	72	61	2	1
53.....	6,090	6,521	45	49	87	125	1		3,553	3,523	82	88	60	57	2	2
54.....	5,916	6,580	54	59	92	108	1	1	3,700	3,525	100	119	77	50		
55.....	8,109	8,674	72	76	133	130	2	3	4,656	4,570	178	174	122	73	2	3
56.....	6,045	6,326	57	71	126	131	2	2	3,519	3,370	102	101	68	69	3	2
57.....	4,774	4,963	31	37	113	107			2,618	2,411	82	62	69	40	2	
58.....	5,402	5,855	52	51	130	115	1	1	2,972	2,958	71	94	60	53		
59.....	4,297	4,555	28	30	104	106		1	2,558	2,381	52	69	60	40	3	4
60.....	9,556	10,441	105	139	174	175	3		5,179	5,376	255	263	118	81	10	7
61.....	3,600	3,856	18	15	122	101			2,015	1,958	88	39	70	61	4	4
62.....	4,546	4,854	39	35	145	121		2	2,539	2,506	84	65	71	54	2	5
63.....	4,179	4,428	42	35	139	115	2		2,261	2,237	58	58	84	57	1	3
64.....	3,779	4,028	17	19	143	122	1		2,004	1,989	60	49	65	56		3
65.....	5,491	5,924	53	57	183	208	3	2	2,878	2,916	127	151	98	87	1	5
66.....	3,161	3,510	26	20	129	104	1	2	1,692	1,789	31	43	60	57	2	1
67.....	3,167	3,600	10	21	163	138	1		1,493	1,617	35	30	72	76	1	2
68.....	3,250	3,678	24	30	139	154	3	1	1,671	1,668	58	44	77	78	1	5
69.....	2,786	3,037	22	21	167	149	1	1	1,352	1,387	37	41	63	75		2
70.....	4,097	5,209	37	47	181	200	2	3	2,098	2,407	112	140	92	90	2	3
71.....	2,082	2,316	10	14	151	131			988	968	23	25	50	43	1	2
72.....	2,214	2,819	19	14	148	154	1		1,154	1,240	31	31	81	61		1
73.....	2,058	2,536	11	16	124	143		2	1,045	1,082	17	29	90	80	4	1
74.....	1,871	2,276	6	12	153	146	1		890	1,032	23	33	64	69	3	1
75.....	2,166	2,807	13	21	177	177	5	2	961	1,192	66	50	73	92	5	2
76.....	1,557	2,092	9	13	126	157	1	1	730	879	15	28	61	71	3	1
77.....	1,164	1,583	5	10	139	143			521	625	19	18	53	62	1	
78.....	1,181	1,511	6	13	134	150		1	541	700	18	29	58	72	2	3
79.....	1,049	1,420	10	10	137	158	1	1	433	581	16	18	67	58	1	
80.....	1,339	1,995	17	35	153	169			560	755	32	55	77	94	5	7
81.....	657	906	6	3	117	116		3	237	331	5	7	30	59	1	1
82.....	614	982	5	5	94	144			238	358	13	11	30	58	3	
83.....	539	853	1	4	111	117			189	300	7	12	29	45		2
84.....	455	771	1	7	77	132		1	169	303	4	9	33	53	1	1
85.....	320	611	2	4	77	116		1	135	259	10	15	24	35		
86.....	255	502	1	4	49	95		2	126	176	8	8	14	32	1	1
87.....	217	403	2	6	49	75			110	150	3	7	17	33		
88.....	187	298	3	3	42	74	1		84	117	5	8	21	26	1	1
89.....	113	244	1	4	35	45			48	81	5	3	13	25	1	2
90.....	120	254	2	1	29	48	1	3	48	86	4	14	20	15	1	1
91.....	60	119		1	13	32			28	38		2	7	8		
92.....	46	101			11	32		1	24	47	3	1	4	11		2
93.....	37	98			11	27			15	33	1		3	9	1	
94.....	21	58		1	18	18			6	24	1	1	5	5		
95.....	22	48	2		5	18	2	1	8	10	2	2	3	5	1	1
96.....	13	33	1		3	8			8	12	1		1	4	2	1
97.....	13	18	1		2	5			4	10			1	2		1
98.....	5	20			3	7		1	7	9		1	1	2		
99.....	1	10	1			4			2	7	1			1		
100 and over..	7	30	4	2	2	10		1	2	11	5	7		7	1	2
Unknown.....													70	42	5	3

MORTALITY AND VITAL STATISTICS.

The extent to which the use of the ages as given by single years would vitiate the results if they were used for direct computations of mortality rates may be seen by the following:

TABLE 155.—SHOWING FOR MASSACHUSETTS AND NEW JERSEY, FOR CERTAIN AGES, WITH DISTINCTION OF COLOR AND SEX, THE PROPORTION OF DEATHS IN 1000 OF POPULATION, AS COMPUTED FROM THE RETURNS FOR SINGLE YEARS.

Age.	MASSACHUSETTS.				NEW JERSEY.			
	White.		Colored.		White.		Colored.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
19 years	6.77	8.41	.....	10.25	5.59	6.34	18.51	12.94
20 years	8.23	7.37	11.20	4.16	5.93	5.20	20.17	4.11
21 years	8.03	8.79	6.71	5.98	5.68	8.52	7.35	5.83
24 years	8.13	9.18	.....	10.98	9.19	9.24	7.42	12.39
25 years	7.42	7.92	3.35	14.70	7.89	6.46	4.30	11.45
26 years	7.57	9.87	26.59	4.36	6.23	8.07	9.17	7.51
29 years	9.81	9.69	11.97	20.94	11.02	9.73	7.72	4.06
30 years	6.46	7.37	11.31	6.06	6.21	6.44	5.27	6.76
31 years	10.63	10.65	.....	10.41	7.79	10.78	5.81	28.24
39 years	12.01	12.90	7.24	23.43	11.46	7.85	21.45	8.54
40 years	7.34	8.14	12.86	21.66	8.40	8.13	12.98	3.70
41 years	12.68	11.26	15.38	17.24	14.08	11.72	18.69	26.54
49 years	16.11	12.83	.....	14.49	11.73	14.50	23.03	.....
50 years	9.42	8.41	25.15	4.32	11.73	9.02	8.74	2.57
51 years	19.16	14.90	.....	.....	17.43	14.65	23.80	12.10

The conclusion that the mortality at the ages of 20, 25, 30, 40, or 50 is much less than at the ages immediately preceding or following these periods, as indicated by the above table, would, of course, be quite erroneous. This error is avoided to a great extent when the ages are taken by decennial periods, as from 25 to 34, etc., as has been done in the approximate life tables given in this report. It should be remembered, however, that the returns of ages at death are more accurate than those for the living, and as the figures for each are taken for the periods 25-34, 35-44, etc., inclusive, it follows that the excess for the ages 25, 35, 45, etc., is distributed wholly in the succeeding decade, instead of being distributed between the preceding and the succeeding decades, as it should be if accuracy is desired. The effect of this is to make the mortality rates for each decade, as calculated, a trifle lower than the reality, but the difference is unimportant.

In this connection the following figures showing the mean age at death are given; but it is proper to state to those who are not familiar with the subject of vital statistics that no definite conclusions can be drawn from these figures. The mean age at death for the whole United States was 26.0; in the 50 large cities it was 23.6; for the rest of the country, 26.7 years. In the 10 grand groups in which the distinction of color was made, the mean age at death of whites was 26.8; of the colored, 20.4 years; and in the 14 grand groups in which the distinctions of Irish and German parentage were made, the mean age of death was, for the Irish, 34.2; for the German, 28.4 years; the greater average age at death for those of Irish and German parentage being, of course, due to the much greater proportion of persons of adult age in those classes of the population. For the 17 years 1838-54, the mean age at death in England was 29.4, the mean expectation of life for the same period being 40.9 years.

SECTION XI.—AGES OF LIVING POPULATION.

The character of the stream of life which is flowing through a given country or locality at a given date is indicated by tables showing the distribution of ages in the living population with distinction of sex, and, as far as possible, of race. Upon the peculiarities of age distribution depend very largely both natality and gross mortality rates, and also the mortality from certain diseases; and hence these peculiarities must be taken into account in the study of deaths in relation to age, sex, locality, occupation, etc.

Tables LVI to LXI, inclusive, show the distribution of ages, and the proportion which the number at each age bears to the whole, for the living population of the United States and of each individual state.

AGES OF LIVING POPULATION.

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The following tables and cartograms show for the states and territories the proportion of population under 5 years and over 60 years of age to all ages:

TABLE 156.—SHOWING FOR THE POPULATION OF THE STATES AND TERRITORIES THE NUMBER UNDER 5 YEARS OF AGE IN 100,000 OF ALL AGES.

States and Territories.	Per 100,000 of all ages.	States and Territories.	Per 100,000 of all ages.	States and Territories.	Per 100,000 of all ages.	States and Territories.	Per 100,000 of all ages.
New Hampshire.....	8,811	District of Columbia.....	11,617	Illinois.....	13,526	Louisiana.....	16,074
Arizona.....	9,748	Wyoming.....	11,768	Washington territory.....	13,725	Tennessee.....	16,209
Maine.....	9,922	New Jersey.....	11,910	Wisconsin.....	13,781	Florida.....	16,271
Colorado.....	9,932	Delaware.....	12,506	Iowa.....	14,164	North Carolina.....	16,654
Montana.....	9,985	Ohio.....	12,677	Missouri.....	14,339	Georgia.....	16,962
Massachusetts.....	10,056	Michigan.....	12,697	Dakota.....	14,589	Alabama.....	16,966
Connecticut.....	10,097	Idaho.....	12,830	Minnesota.....	15,012	Mississippi.....	17,310
Nevada.....	10,113	Pennsylvania.....	12,893	Kentucky.....	15,063	South Carolina.....	17,432
Vermont.....	10,260	Indiana.....	13,023	Kansas.....	15,230	Texas.....	17,592
Rhode Island.....	10,337	Oregon.....	13,112	Virginia.....	15,516	Arkansas.....	17,750
California.....	10,805	Maryland.....	13,151	Nebraska.....	15,950	Utah.....	17,776
New York.....	10,998	New Mexico.....	13,506	West Virginia.....	16,058		

FIG. 128.—CARTOGRAM SHOWING DISTRIBUTION OF POPULATION UNDER 5 YEARS PER 1000 OF TOTAL POPULATION. IN 5 SHADES.

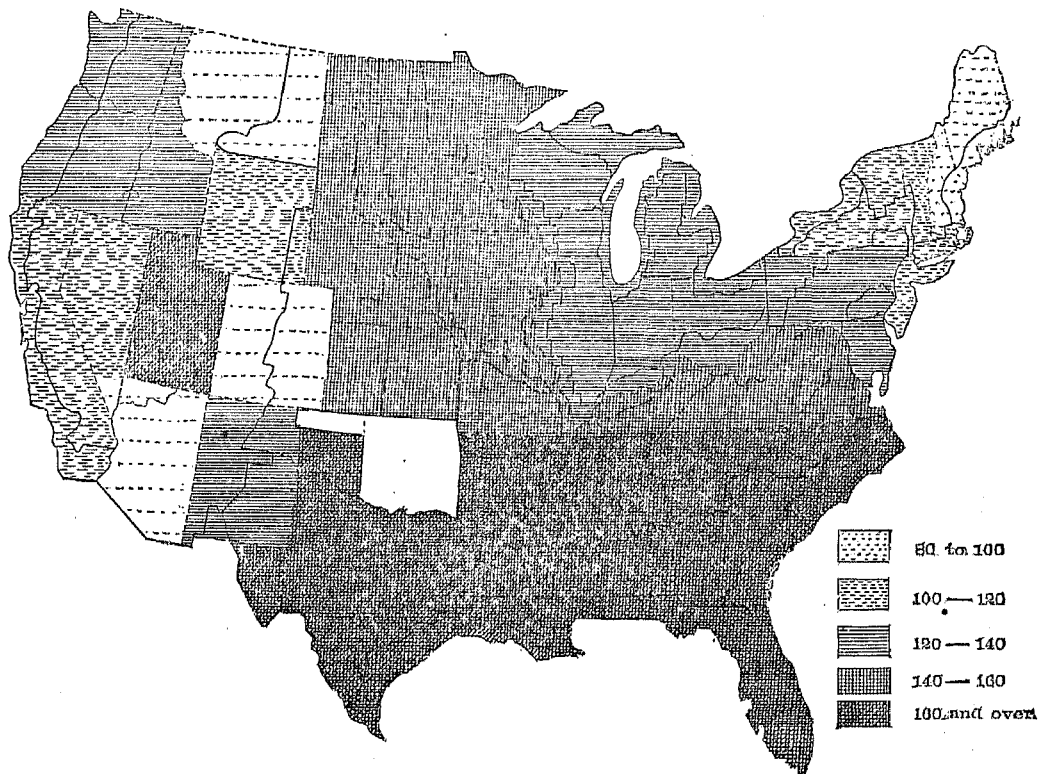
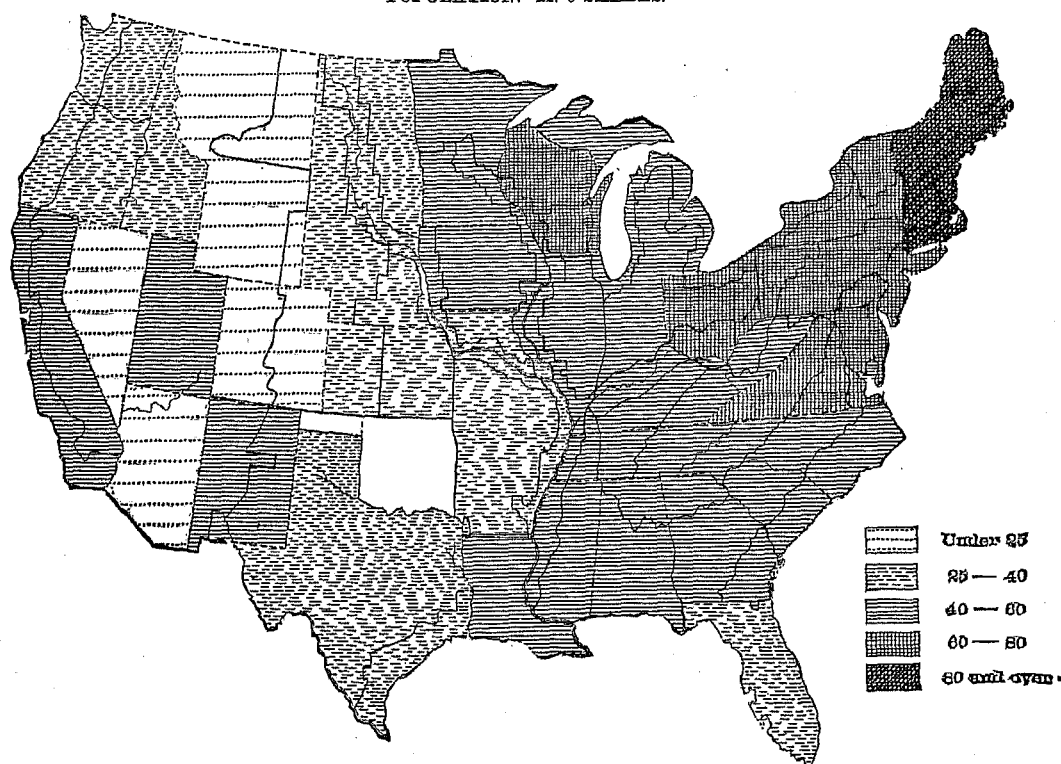


TABLE 157.—SHOWING FOR THE POPULATION OF THE STATES AND TERRITORIES THE NUMBER OVER 60 YEARS OF AGE IN 100,000 OF ALL AGES.

States and Territories.	Per 100,000 of all ages.	States and Territories.	Per 100,000 of all ages.	States and Territories.	Per 100,000 of all ages.	States and Territories.	Per 100,000 of all ages.
Wyoming.....	1,496	Oregon.....	3,632	Illinois.....	4,784	Ohio.....	6,429
Arizona.....	1,805	Missouri.....	3,945	Iowa.....	4,912	Wisconsin.....	6,436
Montana.....	1,926	Florida.....	3,970	West Virginia.....	5,001	New Jersey.....	6,577
Colorado.....	2,009	California.....	4,092	Utah.....	5,020	Delaware.....	6,788
Nevada.....	2,234	Mississippi.....	4,219	Indiana.....	5,088	New York.....	7,411
Dakota.....	2,640	New Mexico.....	4,235	South Carolina.....	5,250	Rhode Island.....	8,004
Idaho.....	2,769	Minnesota.....	4,333	North Carolina.....	5,327	Massachusetts.....	8,383
Washington territory.....	2,908	Alabama.....	4,428	District of Columbia.....	5,385	Connecticut.....	9,229
Arkansas.....	2,930	Tennessee.....	4,445	Michigan.....	5,760	Maine.....	9,922
Nebraska.....	3,043	Louisiana.....	4,670	Virginia.....	6,039	Vermont.....	11,410
Kansas.....	3,190	Georgia.....	4,709	Maryland.....	6,126	New Hampshire.....	12,201
Texas.....	3,231	Kentucky.....	4,730	Pennsylvania.....	6,383		

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FIG. 129.—CARTOGRAM SHOWING DISTRIBUTION OF POPULATION OVER 30 YEARS PER 1000 OF TOTAL POPULATION. IN 5 SHADES.



The following tables and diagrams show the distribution of the population of the United States in relation to age at the censuses of 1870 and 1880, with distinction of native-born whites, foreign-born whites, and colored. A glance at fig. 130 shows that the decrease in the number living at each quinquennial group of ages at the census of 1880 is tolerably regular for the whole population, for the native-born whites, and for the colored, as we proceed from the lower to the higher ages, but that to this there is one marked exception for the age-group 15-20, in which the line makes a sudden angle, indicating a relative deficiency in the number of persons living at this age. It will be observed, also, that the age group in which there is the greatest proportion of the foreign-born population is that from 35 to 40:

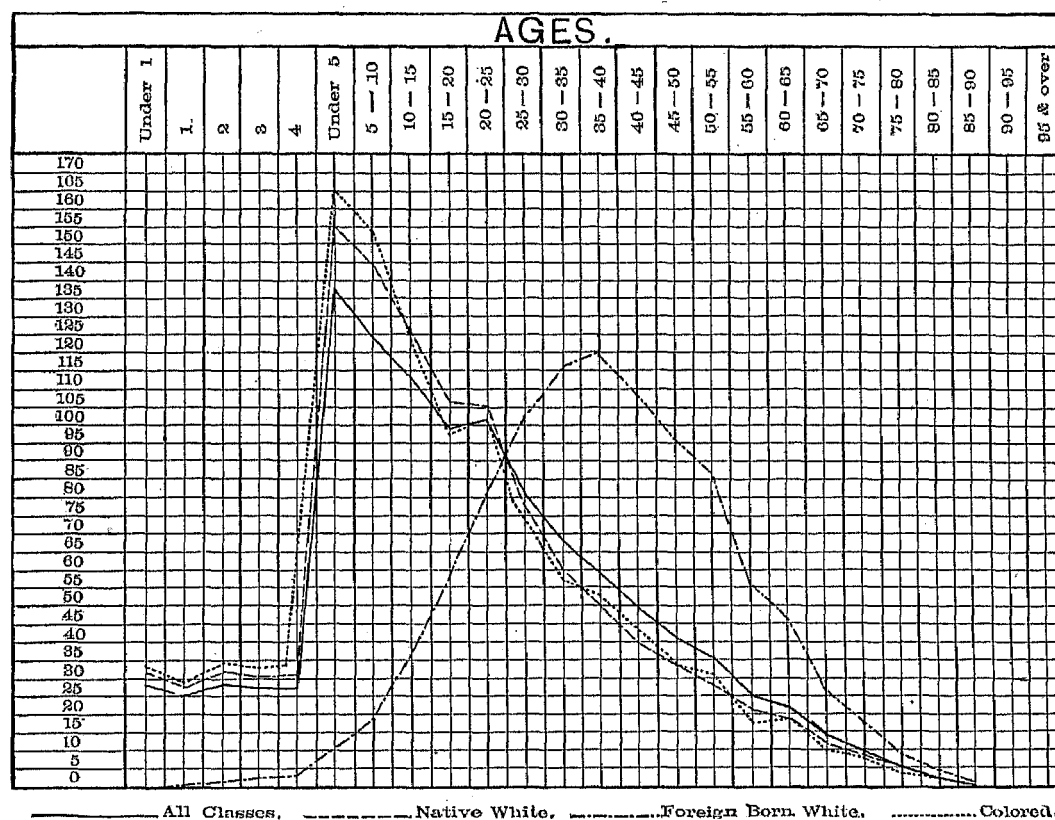
TABLE 158.—SHOWING FOR THE UNITED STATES, WITH DISTINCTION OF NATIVE-BORN WHITES, FOREIGN-BORN WHITES, AND COLORED, THE PROPORTION IN 1000 OF THOSE LIVING AT CERTAIN GROUPS OF AGES AT CENSUS OF 1880.

Groups of ages.	All classes.	Native whites.	Foreign whites.	Colored.
Under 1 year.....	28.8	32.9	0.0	33.9
1 year.....	25.0	28.4	1.5	29.2
2 years.....	28.4	32.0	2.0	34.4
3 years.....	27.5	30.9	2.3	33.1
4 years.....	27.9	31.2	2.5	34.2
Under 5 years.....	137.8	155.7	9.5	165.0
5-10 years.....	129.1	144.3	18.7	153.6
10-15 years.....	113.9	120.0	36.3	123.6
15-20 years.....	99.9	107.8	57.7	97.7
20-25 years.....	101.4	105.1	80.5	101.4
25-30 years.....	81.3	77.9	102.3	79.8
30-35 years.....	67.1	60.1	116.2	57.7
35-40 years.....	59.8	50.4	120.3	52.1
40-45 years.....	49.2	40.1	108.6	41.1
45-50 years.....	41.6	33.4	96.1	33.7
50-55 years.....	36.6	28.5	87.9	31.3
55-60 years.....	25.3	21.2	56.3	17.2
60-65 years.....	22.0	18.1	47.3	18.7
65-70 years.....	14.4	12.9	27.6	10.1
70-75 years.....	9.8	8.9	17.4	7.5
75-80 years.....	5.6	5.2	9.2	3.8
80-85 years.....	2.9	2.6	4.7	2.7
85-90 years.....	0.9	0.9	1.4	0.3
90-95 years.....	0.3	0.2	0.4	0.6
95-100 years.....	0.08	0.05	0.1	0.2

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Fig. 130.—PROPORTIONS, IN 1000, OF LIVING POPULATION AT CERTAIN GROUPS OF AGES, AT CENSUS OF 1880.



Comparing the above facts with those indicated by a corresponding table and diagram for the census of 1870 (table 159 and fig. 131), we find that the peculiar deficiency in the age group, and the maximum proportion of foreign-born, occur in the age groups preceding by 10 years those in which they occur in 1880.

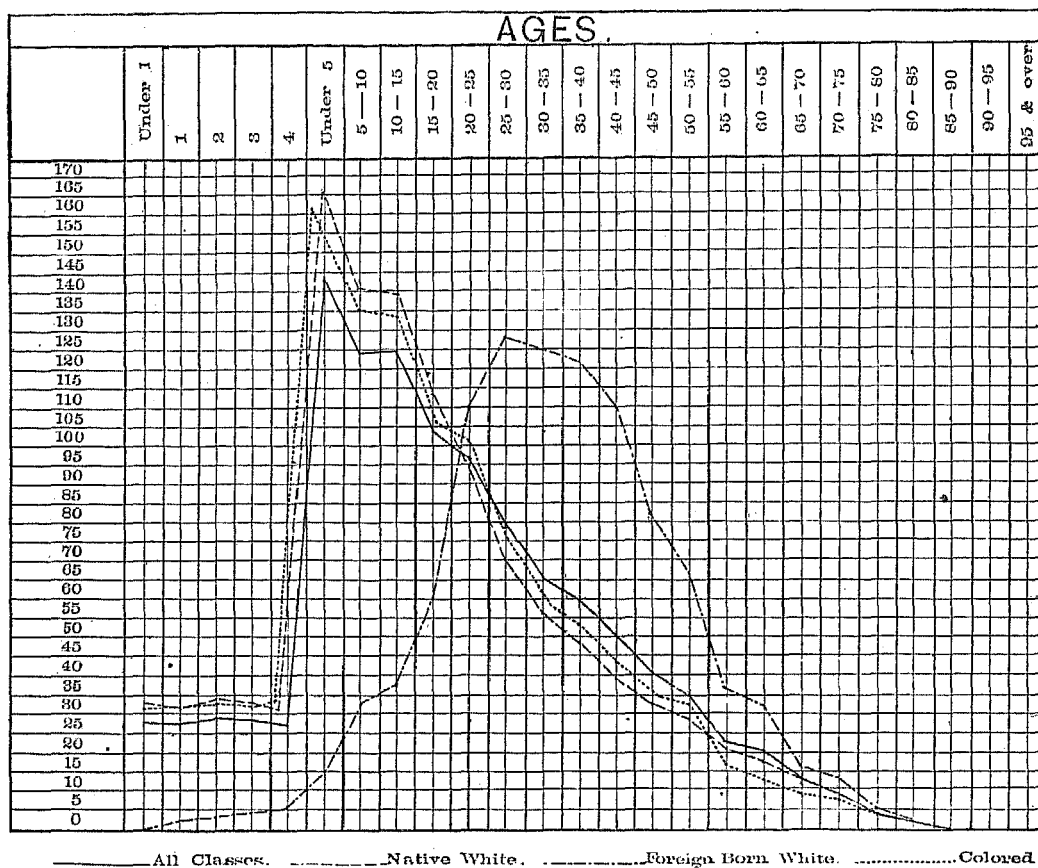
In fig. 131 the break or step in the descending line occurs in the age group 5-10 instead of that of 15-20, and the maximum proportion of the foreign-born is at the age group 25-30 instead of that of 35-40. Going back between 5 and 10 years from the census of 1870 to see what special cause existed in that period for a diminution in the number of births, we find ourselves in the period of our civil war.

TABLE 159.—SHOWING FOR THE UNITED STATES, WITH DISTINCTION OF NATIVE-BORN WHITES, FOREIGN-BORN WHITES, AND COLORED, THE PROPORTION IN 1000 OF THOSE LIVING AT CERTAIN GROUPS OF AGES AT CENSUS OF 1870.

Groups of ages.	All classes.	Native whites.	Foreign whites.	Colored.
Under 1 year.....	28.5	33.5	1.0	31.3
1 year.....	28.0	32.4	2.0	32.2
2 years.....	29.6	34.2	3.1	33.6
3 years.....	28.9	33.2	4.0	32.5
4 years.....	28.0	31.7	5.1	32.5
Under 5 years.....	143.0	165.0	15.2	162.1
5-10 years.....	124.0	141.6	31.7	135.2
10-15 years.....	124.1	140.0	37.4	132.2
15-20 years.....	104.8	113.4	59.3	106.7
20-25 years.....	97.2	93.4	110.9	102.2
25-30 years.....	79.8	70.2	129.0	77.7
30-35 years.....	68.5	56.1	125.5	58.4
35-40 years.....	60.0	49.1	121.0	53.0
40-45 years.....	50.3	30.7	109.4	44.4
45-50 years.....	41.0	33.9	82.4	34.6
50-55 years.....	35.5	29.7	67.3	33.1
55-60 years.....	22.7	21.1	37.1	16.6
60-65 years.....	20.2	18.0	33.0	18.7
65-70 years.....	12.6	12.2	17.7	9.2
70-75 years.....	8.9	8.5	12.6	7.5
75-80 years.....	4.6	4.6	5.4	3.4
80-90 years.....	3.4	3.2	3.8	3.5
90-100 years.....	0.4	0.3	0.5	1.0
100 and over.....	0.1	0.02	0.1	0.5

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Fig. 181.—PROPORTION, IN 1000, OF LIVING POPULATION AT CERTAIN GROUPS OF AGES, AT CENSUS OF 1870.

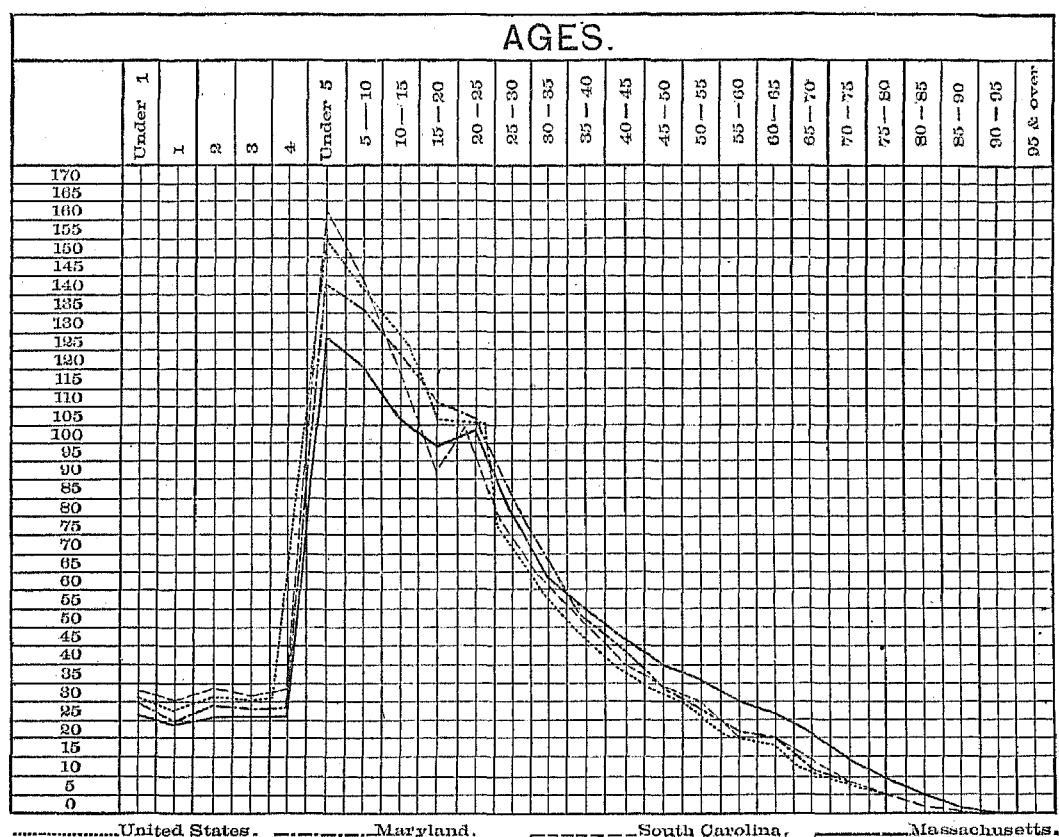


These breaks or distortions, then, are the scars of one of the wounds which the war inflicted. This will be still more evident from an examination of the following table and diagram, showing the loss in native white births due to this cause in the United States, in Massachusetts, in South Carolina, and in Maryland.

TABLE 160.—SHOWING BY GROUPS OF AGES FOR THE NATIVE WHITE POPULATION OF THE UNITED STATES, MASSACHUSETTS, SOUTH CAROLINA, AND MARYLAND, THE PROPORTION IN 1000 AT EACH GROUP OF AGES TO THE TOTAL NATIVE WHITE POPULATION AT CENSUSES OF 1870 AND 1880.

Groups of ages.	CENSUS OF 1870.				CENSUS OF 1880.			
	United States.	Massachusetts.	South Carolina.	Maryland.	United States.	Massachusetts.	South Carolina.	Maryland.
0-5 years.....	165.0	128.1	145.7	157.3	155.7	129.6	163.9	143.0
5-10 years.....	141.6	116.4	122.9	140.0	144.3	121.2	144.3	136.3
10-15 years.....	140.0	122.1	138.8	137.7	126.0	107.8	117.4	124.9
15-20 years.....	113.4	106.7	117.6	117.4	107.8	99.7	92.6	111.3
20-25 years.....	93.4	88.8	106.4	93.2	105.1	103.4	104.8	106.4
25-30 years.....	70.2	71.4	71.8	73.3	77.9	81.2	79.7	79.6
30-35 years.....	56.1	61.0	56.7	57.2	60.1	63.7	64.9	62.0
35-40 years.....	49.0	54.8	49.8	49.1	50.4	55.2	51.2	54.7
40-45 years.....	39.7	43.1	42.5	39.7	40.1	47.5	40.4	43.2
45-50 years.....	32.9	43.1	37.1	35.6	33.4	40.6	34.8	34.4
50-55 years.....	29.7	39.2	33.4	32.1	28.5	36.9	30.8	30.1
55-60 years.....	21.1	30.9	21.7	21.3	21.2	30.0	20.4	21.7
60-65 years.....	18.0	27.9	22.9	18.6	18.1	27.0	20.1	20.2
65-70 years.....	12.2	20.5	13.7	11.9	12.9	21.1	14.4	13.5
70-75 years.....	8.5	15.2	9.6	8.2	8.9	16.0	9.8	9.3
75-80 years.....	4.6	9.1	4.8	4.2	5.2	10.1	5.3	5.1
80-90 years.....	3.2	6.9	3.9	2.9	3.5	7.4	3.8	3.1
90 and over.....	0.3	0.6	0.7	0.3	0.2	0.5	0.3	0.2

FIG. 132.—PROPORTION IN 1000 OF NATIVE WHITES, BY GROUPS OF AGES, AT CENSUS OF 1880, IN THE UNITED STATES, MARYLAND, MASSACHUSETTS, AND SOUTH CAROLINA.



It will be observed that the irregularity in the line indicating the colored population is greater in fig. 130 for 1880 than it is in fig. 131 for 1870.

The shifting of the maximum point in the line of the foreign-born population is explained by the unusually great immigration of Irish and German families containing young children which occurred between 1850 and 1860, forming a wave whose crest is still perceptible.

An examination of the numbers reported as living in each of the first five years of life shows the usual discrepancies, *i. e.*, that the number of those reported as being under 1 year of age, and as being between 1 and 2 years of age, is too small, while the numbers for the ages 2 to 3, 3 to 4, and 4 to 5 are too large. It is evident that the number living between 1 and 2 years old should be greater than the number living between 2 and 3 years old, while the figures given as the result of the enumeration show precisely the reverse, being for the age 1 to 2, 1,256,956, and for the age 2 to 3, 1,427,086.

This discrepancy is discussed in the volume on Vital Statistics for the United States Census of 1870, pp. 517 *et seq.*, and a formula is given by Prof. E. B. Elliott for its correction. If the figures for the first five years of life for the census of 1880 be adjusted by this formula, making no allowance for omissions in the enumeration, the result is as shown in the following table:

TABLE 161.—SHOWING POPULATION UNDER 5 YEARS OF AGE, AND PROPORTION IN 100,000 OF POPULATION, AT THE CENSUS OF 1880, AS OBSERVED AND AS ADJUSTED.

Age.	Observed.	Adjusted.	IN 100,000 OF POPULATION.	
			Observed.	Adjusted.
0-1 year.....	1,447,983	1,514,687	2,887	3,020
1-2 years.....	1,256,956	1,416,517	2,506	2,824
2-3 years.....	1,427,086	1,364,172	2,845	2,720
3-4 years.....	1,381,274	1,325,256	2,754	2,642
4-5 years.....	1,401,217	1,203,884	2,794	2,580
0-5 years.....	6,914,516	6,914,516	13,786	13,786

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The same kind of discrepancy is found in the results of the census of England and Wales in 1881, as will be seen by the following extract from the table of ages:

TABLE 162.—SHOWING POPULATION UNDER 5 YEARS OF AGE IN ENGLAND AND WALES IN 1881.

Ages.	Persons.	Males.	Females.
All ages	25,974,439	12,639,902	13,334,537
0	753,113	376,890	376,223
1 year	684,412	341,434	342,978
2 years	704,409	351,616	352,793
3 years	691,095	344,788	346,307
4 years	687,235	342,929	344,306
Under 5 years	3,520,864	1,757,057	1,763,207

These discrepancies are, however, less in the English census, showing that the ages are obtained more accurately than with us.

The following table shows the percentage of difference for several groups of ages as reported in the United States census of 1880 and in the English census of 1881:

TABLE 163.—SHOWING FOR THE UNITED STATES (1880) AND FOR ENGLAND AND WALES (1881) THE PERCENTAGE OF DISCREPANCIES AT CERTAIN GROUPS OF AGES.

Ages.	PERCENTAGE OF DIFFERENCE.	
	United States.	England and Wales.
0-2 years	13.19	9.12
1-3 years	13.53	2.92
2-4 years	3.21	1.85
3-5 years	1.44	0.65

If we take the difference between the numbers reported as living between the age of 1 and 2 and between the ages 2 and 3, and calculate the percentage which this forms of the first or smaller number, we may use the percentages thus obtained to estimate roughly the accuracy with which the ages have been reported, and by comparison may obtain an approximate idea as to the reliability of the results obtained.

The following table gives the results of such comparisons for the several states and territories, and it will be seen that the discrepancies are greatest among the colored, and among the foreign-born in New Mexico and Arizona and in the Southwest.

TABLE 164.—SHOWING FOR THE UNITED STATES AND FOR STATES AND TERRITORIES THE NUMBER LIVING BETWEEN THE AGES OF 1 AND 2 YEARS AND 2 AND 3 YEARS OF AGE, THE DIFFERENCE IN THE NUMBER, AND THE PERCENTAGE OF DISCREPANCY OF THE EARLIER AGE.

Rank.	State or Territory.	1 year.	2 years.	Difference.	Percentage of discrepancy.	Rank.	State or Territory.	1 year.	2 years.	Difference.	Percentage of discrepancy.
21	The United States	1,256,956	1,427,086	170,130	13.5	6	Mississippi	33,646	41,265	7,619	22.6
10	Alabama	87,845	44,504	6,659	17.5	8	Missouri	54,999	65,253	10,254	18.6
2	Arizona	669	886	217	32.4	25	Montana	717	808	91	12.6
17	Arkansas	25,744	20,416	3,672	14.2	45	Nebraska	13,539	14,299	760	5.6
13	California	16,830	19,623	2,793	16.5	12	Nevada	1,130	1,318	188	16.6
19	Colorado	3,448	3,023	475	13.7	36	New Hampshire	5,690	6,224	534	9.3
16	Connecticut	11,359	13,083	1,724	15.1	24	New Jersey	24,348	27,546	3,198	13.1
41	Dakota	3,727	4,052	315	8.4	1	New Mexico	2,354	3,440	1,086	46.1
15	Delaware	8,248	3,765	517	15.9	14	New York	99,680	115,809	16,129	16.1
5	District of Columbia	3,370	4,153	783	23.2	37	North Carolina	44,468	48,520	4,052	9.1
4	Florida	7,433	9,180	1,757	23.6	26	Ohio	73,554	82,738	9,184	12.4
18	Georgia	48,060	54,800	6,740	14.0	29	Oregon	4,194	4,690	496	11.8
23	Idaho	773	865	92	11.9	38	Pennsylvania	103,122	112,510	9,388	9.1
20	Illinois	75,595	80,011	10,416	13.7	35	Rhode Island	5,402	5,914	512	9.4
44	Indiana	48,075	52,008	3,933	8.1	23	South Carolina	32,038	36,299	4,261	13.2
43	Iowa	42,074	46,227	3,553	8.3	30	Tennessee	46,662	51,802	5,140	11.0
31	Kansas	27,525	30,427	2,902	10.5	7	Texas	48,945	53,871	4,926	20.2
9	Kentucky	44,228	52,168	9,930	17.9	46	Utah	5,009	5,290	281	5.6
3	Louisiana	25,315	32,888	7,573	29.0	34	Vermont	6,379	7,001	622	9.7
33	Maine	11,991	13,205	1,214	10.1	27	Virginia	43,146	48,493	5,347	12.3
11	Maryland	21,748	25,364	3,616	16.6	42	Washington territory	1,999	2,107	108	5.4
32	Massachusetts	33,051	30,424	3,373	10.2	43	West Virginia	13,831	20,422	1,591	8.4
40	Michigan	33,788	42,216	3,428	8.8	22	Wisconsin	32,996	37,434	4,438	13.4
47	Minnesota	22,150	23,352	1,202	5.4	39	Wyoming	452	493	41	9.0

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TABLE 165.—SHOWING FOR THE UNITED STATES AND FOR CERTAIN STATES, WITH DISTINCTION OF COLOR, THE POPULATION BETWEEN 1 AND 2 YEARS AND 2 AND 3 YEARS OF AGE, THE DIFFERENCE IN THE NUMBER, AND THE PERCENTAGE OF DISCREPANCY OF THE EARLIER AGE.

States.	WHITES.				COLORED.			
	1 year.	2 years.	Difference.	Percentage of discrepancy.	1 year.	2 years.	Difference.	Percentage of discrepancy.
The United States	1, 059, 607	1, 194, 600	134, 993	12.7	197, 349	232, 486	35, 137	17.8
Alabama	20, 111	22, 995	2, 884	14.3	17, 734	21, 599	3, 775	21.2
District of Columbia.....	2, 052	2, 705	653	31.8	1, 318	1, 448	130	9.8
Florida	3, 899	4, 758	859	22.0	3, 534	4, 432	898	25.4
Georgia.....	25, 008	27, 939	2, 931	11.7	23, 052	26, 861	3, 809	16.5
Kentucky	36, 555	43, 514	6, 959	18.0	7, 373	8, 644	1, 271	17.2
Louisiana.....	11, 431	15, 593	4, 162	36.4	13, 884	17, 295	3, 411	24.5
Maryland.....	10, 358	19, 176	2, 818	17.2	5, 890	6, 188	798	14.8
Mississippi	13, 892	16, 668	2, 776	19.9	19, 754	24, 597	4, 843	24.5
Missouri.....	51, 487	60, 810	9, 323	18.1	3, 512	4, 443	931	26.5
North Carolina	26, 971	28, 512	1, 541	5.7	17, 497	20, 008	2, 511	14.3
South Carolina.....	11, 698	13, 352	1, 654	14.1	20, 340	22, 947	2, 607	12.8
Tennessee	34, 060	37, 877	3, 811	11.1	12, 596	13, 925	1, 329	10.5
Texas.....	36, 450	43, 095	7, 245	19.8	12, 495	15, 176	2, 681	21.4
Virginia	24, 106	26, 763	2, 657	11.0	19, 040	21, 730	2, 690	14.1

TABLE 166.—SHOWING FOR THE UNITED STATES AND FOR CERTAIN STATES, WITH DISTINCTION OF NATIVITY, THE WHITE POPULATION BETWEEN 1 AND 2 YEARS AND 2 AND 3 YEARS OF AGE, THE DIFFERENCE IN THE NUMBER, AND THE PERCENTAGE OF DISCREPANCY OF THE EARLIER AGE.

States.	NATIVE WHITES.				FOREIGN-BORN WHITES.			
	1 year.	2 years.	Difference.	Percentage of discrepancy.	1 year.	2 years.	Difference.	Percentage of discrepancy.
The United States	1, 049, 521	1, 180, 955	131, 434	12.5	10, 080	13, 645	3, 550	35.2
Connecticut	10, 890	12, 528	1, 639	14.9	219	285	66	30.1
Illinois	73, 692	83, 705	10, 013	13.5	801	1, 069	268	24.1
Indiana.....	47, 021	50, 776	3, 755	7.9	105	157	52	49.5
Iowa.....	42, 200	45, 647	3, 447	8.1	249	330	81	32.5
Kansas	26, 275	28, 823	2, 548	9.0	182	237	105	57.6
Maine	11, 720	12, 887	1, 167	9.9	236	282	46	19.4
Massachusetts.....	31, 717	34, 725	3, 008	9.4	1, 006	1, 270	264	26.2
Michigan	30, 915	30, 828	2, 913	7.8	1, 316	1, 310	494	37.5
Minnesota.....	21, 440	22, 400	951	4.4	598	831	233	38.9
Nebraska.....	13, 217	13, 819	602	4.5	254	416	162	63.7
New Jersey.....	23, 147	26, 184	3, 037	13.1	315	430	115	36.5
New York.....	97, 038	112, 515	15, 477	15.9	1, 389	1, 883	494	35.5
Ohio.....	71, 314	80, 180	8, 872	12.4	425	506	81	19.0
Pennsylvania.....	100, 382	109, 434	9, 052	9.0	675	1, 023	148	16.9
Rhode Island.....	5, 095	5, 557	462	9.0	132	231	49	26.9
Wisconsin.....	32, 361	36, 614	4, 253	13.1	474	643	169	35.6

SECTION XII.—CONCLUSIONS AND RECOMMENDATIONS.

It appears from the data presented in these volumes that the United States, as a whole, during the census year had a comparatively low death rate and high birth rate. The death rate is higher in the colored than in the white population, in the foreign element than in the whites of American parentage, in the cities than in the rural districts.

The most important causes of disease and death were consumption, pneumonia, diphtheria, enteric or typhoid fever, malarial fevers, and those ill-defined forms of disease to which a large part of the great number of deaths of children under 1 year of age are attributed. It is not probable that an unusual mortality from any of these causes, with the exception of diphtheria, prevailed during the census year.

As the country becomes more thickly settled there is an increase of the pollution of soil and water by excremental and other matters, and the possible channels for contagion of specific diseases are multiplying. Although the data

of the census are, for most localities, too imperfect to give specific and definite warning of the evils which threaten many of them, they are sufficient to show that it is time that many towns were improving their water-supply and means of disposal of excreta, and that this country should take steps to secure a complete and systematic registration of deaths upon a uniform plan, and to have the results of such registration published annually at least.

If, however, an attempt is to be made at the next census to collect the statistics of births and deaths for the whole country, as will no doubt be the case, I would respectfully submit the following recommendations as the result of my experience with the data of the present census:

I. The compilation of statistical tables relating to deaths would be greatly facilitated by having the data for each individual death recorded on a separate strip of stout paper or a card. The ease with which these cards can be distributed, in various ways, and the several groups thus made counted is so great, as compared with the process of tallying from large sheets of schedules, that even where such schedules are used for the purpose of collecting the data it will probably be true economy to copy the data from the schedules upon such cards as a preliminary step to such compilation.

Where the data of state or municipal registrations of deaths are to be copied for the use of the census the copies should be made on cards, and in all cities and towns if such cards were distributed to heads of families and householders a few days before the day of taking the census, to be filled out by them, the original data might be collected on them with much more accuracy than by the schedule system.

It would also be quite possible to record many of the data on such cards by punching slots or holes in them in such a way that the several enumerations required could be made by electrical counting or by distributing the cards by machinery, thus insuring accuracy as well as speed.

II. As the dominating factors in vital statistics are age, sex, and race, and as the practical value and interest of such statistics depend upon the possibility of making comparisons between different localities, it follows that in compiling the statistics of the living population the relations of the above-named factors should be given for smaller units of area than have heretofore been employed in our census tabulations.

A state, unless it be one or two of the smallest, is too large for such a unit of area; the state groups of counties used as the unit of area in these volumes are the largest that should be employed, and I believe it is best to give the age and sex statistics by counties. In any event, all cities having 25,000 inhabitants and over should have their populations given with distinctions of age and sex.

I do not mean by this that the number living at each individual year of age is to be given, for this is useless, owing to the accumulations at the even decennials and quinquennials; but it should be given by age groups in periods of 5 years each after the first 5 years.

III. It is very desirable that in the statistics of the living population the principal races should be distinguished, as has been done in the present census for the white and colored. At all events, this should be done for our German and Irish population. I do not mean by this the distinguishing of those born in Ireland or in Germany—this is desirable, but it is totally insufficient for a proper study of race characteristics as connected with births, deaths, etc. What is wanted is the number of living population of Irish or German descent, with distinction of sex and age.

IV. The desirability that the United States should keep constantly in its employ a certain number of men skilled in statistical matters, and especially in census work, and not depend at each census upon almost entirely new men, who are discharged about the time when they have learned by experience to do their work properly, is now so generally recognized that this mere allusion to it is sufficient. I wish only in this connection to call attention to the fact that the collection and compilation of the vital statistics of our census in such a way that they will be practically useful throughout the country involves a much greater amount of labor than is commonly supposed, and that it can not be done cheaply.

I am aware that the recommendations here presented, if carried out, will add to the cost of such statistics, but I am satisfied that the money would be well spent. Nothing pays better than good book-keeping in national affairs, and in no part of a nation's work is good book-keeping more useful than in keeping records of the life and health of its people. The value of the registration records of our states and cities depends largely upon the manner in which the census statistics are compiled and published. It is in this connection that the distinguishing of age groups, not only for the gross population, but for races, for the married and single, and for occupations, is of especial importance, since without this information it is impossible to estimate the influences affecting the population, or to locate the leaks through which the life of the community is being unnecessarily lost. I feel well assured that between this time and the taking of the next census one of the most useful things which could be done by the general government would be to have additional compilations made of the data contained on the population schedules of the Tenth Census, so as to show for each well-defined group of 20,000 or 25,000 persons the age distribution, with distinctions of sex, race, occupations, and marital relations.

The information thus obtained would not only be of much value in itself for the use of the several communities thus scheduled, but it would furnish a foundation upon which, from the results of the next census similarly compiled, might be established some deductions of great practical importance to the nation itself.

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